

## DOCUMENT RESUME

ED 221 746

CE 033 939

**TITLE** Health Occupations Curriculum. Skills and Theory for Health Assistant. Volume 2, Units 5-7.

**INSTITUTION** Arizona State Dept. of Education, Phoenix.

**SPONS AGENCY** Department of Education, Washington, DC.

**PUB DATE** 82

**NOTE** 296p.; For related documents see CE 033 938-943.

**EDRS PRICE** MF01/PC12 Plus Postage.

**DESCRIPTORS** Abbreviations; \*Allied Health Occupations Education; \*Dietetics; Disease Control; Food; \*Health Occupations; Health Personnel; Hygiene; Job Skills; Learning Modules; \*Medical Vocabulary; \*Nutrition; \*Sanitation; Secondary Education; Vocational Education

**IDENTIFIERS** \*Asepsis

**ABSTRACT**

This volume consists of three units of a basic core curriculum that is intended for all health workers. Covered in the units are the following topics: (1) the body's need for food, the effect of food on the body, the five food groups, the six nutrients, and therapeutic diets; (2) general principles of asepsis, specific methods of maintaining medical and surgical asepsis, the infectious process, and transmission of disease; and (3) words and phrases used in making nursing observations; roots, suffixes, and prefixes; commonly used abbreviations and symbols; and surgical and diagnostic terms. The units contain a series of learning modules, each of which contains a rationale, performance objectives, learning activities, terminology, and one or more posttests. (MN)

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HEALTH OCCUPATIONS CURRICULUM  
SKILLS AND THEORY FOR HEALTH ASSISTANT  
VOLUME 2 UNITS 5-7

CE 033939

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[20 U.S.C. 1221e-3(a)(1)]

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Final preparation to include coordinating, editing, proof-reading, and typing completed by the Arizona Department of Education.

Printing and assembling completed by Maricopa County Skill Center in cooperation with the Arizona Department of Education.

Printed in Phoenix, Arizona

Total Copies Printed . . . 300  
Total Printing Cost . . . \$2,787.88  
Unit Printing Cost . . . \$9.29  
Date of Printing . . . 6/81



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## **DEDICATION**

To Shirley Mannion and Dorothy Lawrence: Shirley believed that given the proper support systems almost anyone could succeed and that everyone should be able to go from one occupation to another without repeating learning abilities (career ladder/mobility). Dorothy wrote the original objectives and organized an open entry/open exit program with a Core Curricula for health workers.

To those two pioneers, we owe much. Thanks for being creative and willing to take risks.

## DESCRIPTION OF UNITS

Units 1 through 7 comprise the core curriculum which is the basic curriculum for all health workers.

Those students who wish to enter the health field as nursing assistants must also complete Unit 8.

Students who wish to obtain their Practical Nurse Certificate must complete Units 1-8 and Units 14-20.

Units 9 through 13 are currently in the planning stages of development.

The following is a brief description of each unit in the HOP program.

**Unit 1** introduces the health care facility, the long-term care setting, and the members of the health care teams.

**Unit 2** introduces different ways to communicate feelings and ideas, and how to understand what other people try to express. In addition, human behavior and ethical and legal behavior are discussed.

**Unit 3** introduces the hospital and the patient environment. It provides the information for emergency and first aid skills necessary to maintain patient safety and comfort.

**Unit 4** presents anatomy and physiology as they apply to the health care workers. The organization of the human body, its systems, structures and functions are emphasized.

**Unit 5** examines the body's need for food, the food's affect on the body, the five food groups, the six nutrients, and some therapeutic diets.

**Unit 6** emphasizes the importance of cleanliness. Specific methods are studied to preserve medical and surgical asepsis. Bacterial names, diseases they cause, and the means by which bacteria are transmitted are examined.

**Unit 7** stresses the origin, development, and use of medical terminology. Included are professional words, phrases, abbreviations, symbols, and surgical and diagnostic terms.

**Unit 8** offers the opportunity to apply the basic knowledge, skills, and responsibilities needed for patient care and comfort. Skills such as bathing the patient, observations of vital signs, and the use and care of the various medical equipment and supplies are demonstrated. Performance is observed and evaluated in the lab and the clinical area.

**Units 9-13** are in planning stages of development.

**Unit 14** provides the practical nurse with a foundation in pediatric nursing. The growth and developmental levels of children are covered as well as diseases and conditions specific to children. Principals from previous health care units are reviewed and correlated with theory in this unit.

**Unit 15** emphasizes communication skills and observations through the use of group discussion, role-playing, and audiovisual aids. Concepts of mental health as related to the practical nurse are presented.

**Unit 16** studies legal responsibilities of the practical nurse. Also community resources are visited and studied and the needs of the elderly are included with clinical experience in a long term care facility.

**Unit 17** studies the common medical and surgical conditions and the clinical practice of nursing care for these patients. The principles of adapting basic nursing care and related procedures to the individual patient are practiced.

**Unit 18** stresses the prevention, promotion, and maintenance of health during the prenatal, anti-partal, and the neonatal period, including the complications that are related to obstetrical nursing.

**Unit 19** covers the elementary principles involved in the administration of medications and in weights and measures. The medications commonly used in the treatment of disease are discussed in terms of actions, side effects, and dosages.

**Unit 20** emphasizes proficiency in the application of knowledge and skills learned throughout the training program while in the role of a practical nurse in a clinical setting. Nursing history and organizations are also explored.

## REFERENCES AND REQUIRED TEXTS

The following is a list of required textbooks and reference materials.

### REFERENCE BOOKS

1. Hospital Research and Educational Trust (HRET), Being a Nursing Aide, Robert J. Brady Company, Bowie, Maryland, 1978.
2. Anthony, Catherine Parker, Structure and Function of the Body, C.V. Mosby Company, St. Louis, Missouri, 1980.
3. Velma L. Kerschner, R.N., B.S., Nutrition and Diet Therapy for Practical Nurses, F.A. Davis Co., Philadelphia, Pennsylvania, 1977.
4. Thomas, Clayton L., Taber's Cyclopedic Medical Dictionary, F.A. Davis Company, Philadelphia, Pennsylvania, 1979.
5. Staton, Thomas F., How To Study, Montgomery, Alabama, 1968.
6. Mosby's Review of Practical Nursing, C.V. Mosby Company, St. Louis, MO., 1970.
7. Tucson Community Council, The United Way Directory of Social Resources, Tucson, Arizona, 1978.

### REQUIRED BOOKS

1. Marlow, Dorothy, RN Ed. D., Textbook of Pediatric Nursing, W.B. Saunders Co. 1977.
2. Caldwell, Esther, and Barbara R. Hegner, Geriatric Nursing, A Study of Maturity, Delmar Publishers, Albany, New York, 1976.
3. Johnston, Dorothy F., Total Patient Care, The C.V. Mosby Company, St. Louis, Missouri, 1979.
4. Bethea, Doris C., Introductory Maternity Nursing, J.B. Lippincott Co., Philadelphia, Pennsylvania, 1976.
5. Falconer, Patterson, Gustafson, Sheridan, Current Drug Handbook, 1980-1982, W.B. Saunders Co., Philadelphia, Pennsylvania.
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## DEFINITIONS AND EXPLANATION OF CURRICULUM COMPONENTS

To assist you in understanding how to use these units, we have written the following definitions and explanation for the terms which will be encountered.

Unit: One whole book or topic. Each unit has a number and a title. This first unit is Unit 1; its title is: The Health Care Facility and the Health Team.

Module: Each module has a letter and a title and is like a chapter in a book. The first module in Unit 1 is: Module A, The Health Care Facility.

Suggested References: These are included in the front of each unit only to be utilized if the student is interested in learning more about a subject or trying to understand something more thoroughly.

Rationale: A statement which tells why it is important that the student learn the material contained in each unit.

Performance Objective: Found at the beginning of each module, this tells the student specifically what he/she needs to identify, describe, or demonstrate after completing each module. The student will show the instructor through either written evaluation or by demonstration that he/she has learned what is stated in each objective.

Learning Activities: Found at the beginning of each module, this section gives the student general information and directions on what will be needed to complete the module. Many modules are self-contained or do not require any outside resources, while others will refer the student to textbooks and/or audiovisual materials.

Activities: Information the student must learn in order to satisfactorily complete the performance objectives. Each new subject area is a different activity. Within each activity specific instructions will be given on what to read or which audiovisual should be viewed. There are also written exercises to help the student learn the material. Some of the written exercises will refer the student to the answers on the following page or the answers will be found upside down on the same page. In other exercises, the student will be asked to find the answers in the information already read.

Terminology Section: Common terms found in each unit. This section is a terminology resource for the student.

Post Test: Found at the end of each unit, this is either a written evaluation or a demonstration for your instructor which will measure your knowledge of the skill(s) covered. Your instructor will tell you when it is time to take a Post Test.

Answers to Post Test: These are the answer keys to the Post Tests.

**NOTE:**

Challenging: A statement on the first page that states, "if you wish to challenge a test, see your instructor". Some students will have had previous nursing experience or possibly had college courses covering parts of the curriculum. If the student feels he/she knows the material and can successfully complete the objectives stated in a module without completing all the learning activities, the student should ask the instructor about challenging. If he/she is successful and passes this evaluation to the instructor's satisfaction, the student may progress to the next module.

## PREFACE

### To Instructors:

While preparing this curriculum for publication, the staff revised and updated previous materials. The evaluation questions have now been field tested for validity and reliability and we have established 70% as a minimum passing grade; however, we did not attach this percentage to each objective. Instead, we have introduced each objective with the phrase "To The Instructor's Satisfaction" since we believe our program is based on the individual's abilities and needs, and each instructor should assess and evaluate each student individually. We suggest that each nursing program determine the type of the evaluation and/or the minimum level for passing for their own program. Please keep in mind that our experience has shown that 70% is the minimum necessary to function safely at the bedside.

The units and the tests have been prepared by individual instructors in their own area of expertise. You will find various writing styles throughout the curriculum; however, the format for all the units is the same. The staff attempted to make each unit self-contained, but in many units this was impossible. The required texts for the program are listed in the introduction. The audiovisual materials which are required are listed within the content of each unit. If it is impossible to have these specific audiovisual materials or other required materials available in your training facility, the units can be adapted to similar audiovisuals or to instructor demonstration. The worksheets covering material on the audiovisuals can be used as study guides since the answers are included.

The tests for each unit have been written to test as many important points as possible as stated in the objectives. Although we would hope the students would learn as much as possible of the information presented, due to the overwhelming number of questions which would need to be asked, we only test over what we felt were the most important. As an instructor, you may choose to add or delete information important for your program.

In most cases, the order of presentation of the units can be determined by each program; however, Unit 4 (Anatomy and Physiology) and Unit 8 (Nursing Skills) were written to be presented together. The staff felt that the knowledge of basic anatomy and physiology applied to procedures and to skills gave a greater understanding of why the student needed to learn the material.

It should also be noted that Units 9 through 13 are not included in this published curriculum. At this writing, we have only revised and updated the materials which apply to nurse assistant and practical nurse.

### **ACKNOWLEDGEMENTS**

The staff of the Pima Community College Skill Center who participated in preparing the curriculum for publication includes:

Carol Orin, Director  
Louise Adams  
Orpha Hebden  
Jerry Lewis  
Dorothy Moore  
Sandy Smith  
Evelyn Long  
Catherine Kelly

Typists included: Virginia Wortman  
Roseann Rodriguez

The Health Occupations staff would like to give special thanks to the administration, staff, and students of the Pima Community College Skill Center, and also to the nursing instructors of the Maricopa County Skill Center and the Gila River Career Center for their participation through the Arizona Skills Curriculum Project which was involved in the early stages of the development of the original HOP curriculum.

Carol Erickson, director of the Health Occupations Program at the Maricopa County Skill Center should also receive a special thanks for providing excellent technical assistance in editing and updating the current curriculum. Carol wrote the module on Long-Term Care Facilities, which is an addition to the curriculum.



**LEARNING ACTIVITIES - continued**

Let us discuss in depth the functions of food in the body.

1. Metabolism - is the word that describes all the processes of the body cells. There are two steps in metabolism; namely CATABOLISM and ANABOLISM.
2. Catabolism - is the phase in which the food is broken down into simpler and usable chemicals and wastes eliminated. The good part is used or metabolized. The rebuilding of the new form is the anabolism phase.

CATABOLISM - Means to break down to a usable form.

ANABOLISM - Means to rebuild into a new usable form.

**Directions:** Complete these statements. Check your answers by referring to the previous material in this activity.

The three functions of food are:

1. To build and repair tissue and to make \_\_\_\_\_  
by process of \_\_\_\_\_.
2. To make energy and heat by process of \_\_\_\_\_.
3. To keep the body processes working properly by providing them with necessary carbohydrates, proteins, fats, \_\_\_\_\_  
\_\_\_\_\_ and \_\_\_\_\_.

**ACTIVITY #3. Terms Related to Nutrition**

**Directions:** Read the following.

1. Absorption - Process whereby the usable (absorbable) form of food having completed the chemical phase, enters the bloodstream.
2. Dietetics - Science of applying principles of nutrition to feeding of individuals or of groups. A dietitian's function is to plan diets.
3. Diet Therapy - Treatment prescribed by a physician or dietitian of a specific diet for the patient.
4. Digestion - Process which converts food into an absorbable form. It has a mechanical and a chemical phase.
5. Element - The smallest amount of any substance which has its own unique qualities. For example, oxygen is a colorless, odorless, tasteless gas which combines easily with other elements.



**LEARNING ACTIVITIES - continued**

6. Enzyme - A catalytic substance which retains its original qualities while promoting a chemical change in food.
7. Excretion - The process whereby the body rids itself of such wastes as perspiration, urine, and feces.
8. Food Habits - Characteristic attitudes toward food, influenced by its availability, eater's ethnic origin, religion, special environment and perhaps most frequently by individual taste, likes and dislikes.
9. Food Fad - Eating habits followed for a time with exaggerated effort and precision.
10. Food Superstitions - Irrational ideas and beliefs lacking scientific basis. For example, one might believe eating strawberries during pregnancy will cause birth marks on the baby when it is born.
11. Malnutrition - Faulty or inadequate nutrition, due to dietary deficiencies or an excess of some nutrients (including junk food ) which leads to an unbalanced, inadequate intake of nourishing food.
12. Nutrients - These are divided into six main types: carbohydrates, proteins, fats, vitamins, minerals, and water. The body receives these from the food intake, and they are vitally important to the body's development, growth, health, and to maintenance of life itself.
13. Nutritional Deficiency - Inadequate amounts in proper balance of the nutrients listed in Item 12 above result in nutritional deficiency with resulting damage to the body. This is primary when it is the basic cause of ill health and secondary when it is a complication of another disease or condition.
14. Photosynthesis - Process in which chlorophyll, the green coloring of plants, uses water, carbon dioxide, and the sun's energy to make carbohydrates. Oxygen is given off in this process.
15. Protoplasm - The basic material which forms all cells.
16. Secretion - The process in which the body manufactures useful substances such as hormones and enzymes.

**LEARNING ACTIVITIES - concluded**

**Directions:** Complete this exercise by matching the correct term in the right-hand column with its meaning in the left-hand column. Check your answers with those given on the last page of this module.

**Part 1**

- |                                                                          |               |
|--------------------------------------------------------------------------|---------------|
| _____ 1. Substances needed by the body                                   | a. digestion  |
| _____ 2. Process by which food is changed into a usable form             | b. nutrients  |
| _____ 3. Process in which a usable form of food enters the bloodstream   | c. secretion  |
| _____ 4. Process by which useful substances are manufactured by the body | d. absorption |

**Part 2**

- |                                                         |               |
|---------------------------------------------------------|---------------|
| _____ 1. Process by which the body rids itself of waste | a. protoplasm |
| _____ 2. Catalytic substance with a specific job        | b. excretion  |
| _____ 3. Basic material which forms all cells           | c. element    |
| _____ 4. Smallest substance with unique qualities       | d. enzyme     |

**Part 3**

- |                                                                                   |                           |
|-----------------------------------------------------------------------------------|---------------------------|
| _____ 1. Body is not supplied with necessary amounts of nutrients                 | a. food superstitions     |
| _____ 2. Faulty or inadequate nutrition due to dietary lack, an unbalanced diet   | b. diet therapy           |
| _____ 3. The science of applying principles of nutrition to feeding an individual | c. malnutrition           |
| _____ 4. Treatment through prescription of a specific diet needed by a patient    | d. nutritional deficiency |
| _____ 5. Attitudes and actions concerning food                                    | e. food fad               |
| _____ 6. Food customs followed for a short time                                   | f. dietetics              |
| _____ 7. Irrational ideas and beliefs without any scientific basis                | g. food habits            |

**ANSWERS****ACTIVITY #3****Part 1**

b  
a  
d  
c

**Part 2**

b  
d  
a  
c

**Part 3**

d  
c  
f  
b  
g  
e  
a

## NUTRITION

### Module B - The Five Food Groups

---



#### RATIONALE

Do you like to eat? What special nutrients do you get from the foods you eat? How can you be certain to get a balanced diet? When you complete this module, you will know the answers to these questions.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction, you will:

1. Identify the "Basic Five Food Groups" and their nutrients.
2. Identify two foods found in each group of the "Basic Five Food Groups".
3. Identify the number of suggested daily servings for adults.

#### LEARNING ACTIVITIES

**Directions:** All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

#### ACTIVITY #1. Nutrients

**Directions:** Read the following.

The United States Department of Agriculture (USDA) suggests planning the daily diet around the "Basic Five Food Groups." These are a grouping of foods that allow us to choose foods which together supply nutrients in the amounts needed. Each day our food should supply us with protein for growth and repair of the body, minerals and vitamins for growth and to keep the body functioning properly, and fat and carbohydrates for energy. The basic five food groups are one way to choose foods wisely. With them, you can get the nutrients needed from a variety of everyday foods.

The definition can now be more clearly stated as: The food groups are a grouping of foods which together provide the essential nutrients. These basic food groups are based on studies done by the Institute of Home Economics, United States Department of Agriculture. These five food groups are: "milk-cheese" group, "meat-poultry-fish-beans" group, "vegetable and fruits" group, "bread and cereals" group and the "fats-sweets-alcohol" group.



**LEARNING ACTIVITIES - continued**

The fifth group (fats-sweets-alcohol) was recently added because many people felt the basic four groups omitted salad dressings, margarine or butter, jellies, jams, soft drinks, wine, beer, etc. This group contains the largest number of calories.

The USDA considers the basic five a foundation upon which to build daily food choices. Additional servings should be eaten if necessary to maintain desirable weight. Reduction of food portions to attain weight loss is consistently recommended by the USDA. Overweight can be controlled by reducing portions from the fifth group. Do not eliminate any food group except possibly group number five.

**Directions:** Complete the following exercises. Check your answers with the information given on basic food groups in this activity. If you have questions, see your instructor.

The basic five food groups form the foundation for an adequate diet.

The basic five food groups are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

List the nutrients contained in each of the five groups.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

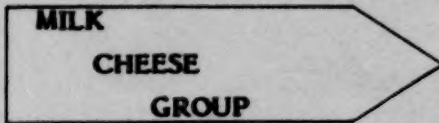


**LEARNING ACTIVITIES - continued****ACTIVITY #2. Foods Found in Each Group**

Directions: Read the following information.

**A GUIDE TO GOOD EATING**

Use Daily

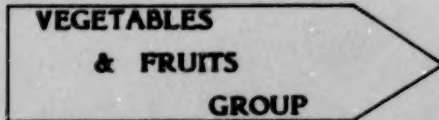
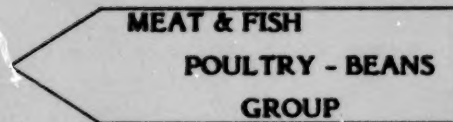


**Group 1**  
**Two servings for an adult**

Cheese, ice cream, buttermilk, yogurt, cottage cheese.

**Group 2**  
**Two Basic Servings**

Meats, fish, eggs, poultry, with dried beans, peas, nuts, as alternates.

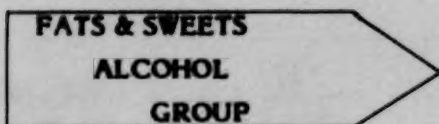
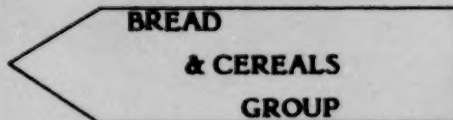


**Group 3**  
**Four Basic Servings**

Include dark green or yellow vegetables, citrus fruits or tomatoes.

**Group 4**  
**Four Basic Servings**

Enriched or whole grain. The addition of milk improves nutritional value. Also included are grits, macaroni, noodles, rice or spaghetti.



**Group 5**  
**No number of servings**

To help you watch the calories.

**LEARNING ACTIVITIES - continued**

**Directions:** Complete this exercise. Check your answers by referring to the previous material.

Identify two foods included in each of the food groups.

- |          |          |          |
|----------|----------|----------|
| Group 1. | 1. _____ | 2. _____ |
| Group 2. | 1. _____ | 2. _____ |
| Group 3. | 1. _____ | 2. _____ |
| Group 4. | 1. _____ | 2. _____ |
| Group 5. | 1. _____ | 2. _____ |

**ACTIVITY #3. Suggested Daily Servings**

**Directions:** Complete the following. Check your answers with the information you have studied in this activity or ask your instructor for help.

The number of suggested daily servings for adults in each of the following food groups is:

1. Milk-cheese \_\_\_\_\_
2. Meat-poultry-fish-beans \_\_\_\_\_
3. Fruits and vegetables \_\_\_\_\_
4. Bread and cereal \_\_\_\_\_
5. Fats-sweets-alcohol \_\_\_\_\_

**Directions:** Use the form, "My Diet for One Day" to list the foods you had for each meal yesterday.

**MY DIET FOR ONE DAY**

In the last 24 hours I ate:

**FOR BREAKFAST:** Breakfast literally means "to break the fast".

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**LEARNING ACTIVITIES - concluded****FOR LUNCH:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**FOR SUPPER:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**FOR SNACK:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

The basic five food groups assure a person has an adequate diet when properly used. Check your diet with the five food groups. Discuss it with your instructor. How did your diet measure up? Did it compare?

(Circle one) YES NO

## **NUTRITION**

### **Module C1 - Carbohydrates, Proteins, Fats**



#### **RATIONALE**

Food provides nourishing substances concerned in the growth, maintenance and repair of the living body as a whole, or of its constituent parts. These substances are known as NUTRIENTS and are grouped into six categories. This module deals with three of them, namely, CARBOHYDRATES, PROTEINS, FATS.

#### **PERFORMANCE OBJECTIVES**

To the instructor's satisfaction, you will:

1. Identify the definition of the word "nutrient" and identify the six nutrients.
2. Identify the best food sources of carbohydrates, their chemical makeup, their classes, and a condition related to the deficiency of carbohydrates in food intake.
3. Describe two functions of carbohydrates in the body.
4. Identify the best food sources of proteins, their chemical makeup, their classes, and a disease related to the deficiency of proteins in food intake.
5. Describe two functions of proteins in the body.
6. Identify the best food sources of fats, their chemical makeup, their classes, and a disease related to the deficiency of fats in food intake.
7. Describe two functions of fats in the body.

#### **LEARNING ACTIVITIES**

**Directions:** All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

**LEARNING ACTIVITIES - continued****ACTIVITY #1. Nutrients**

**Directions:** Read the following information.

Nutrients are substances needed by the body for nourishment. They are contained in food and are needed by the body to help it grow, develop, maintain, reproduce, resist disease, recover from injury, and function normally.

There are six nutrients. Their names and functions are as follows:

1. CARBOHYDRATES - give quick energy
2. PROTEINS - build and repair body tissue (no other nutrient can do this)
3. FATS - provide concentrated energy
4. MINERALS - regulate many vital body processes
5. WATER - comprises 60 to 75 percent of the body's weight
6. VITAMINS - regulate metabolism

Learn the names of the nutrients and their functions in the body. They will be presented in more detail as you proceed with Module C.

**Directions:** Complete this exercise by filling in the blanks with the correct terms. You will find the answers in the material you have studied in this activity.

Nutrients are the \_\_\_\_\_ needed by the body for \_\_\_\_\_. They come from the \_\_\_\_\_ we eat.

**ACTIVITY #2. Carbohydrates**

**Directions:** Read the following information.

The first of the nutrients is CARBOHYDRATES. Carbohydrates are the major source of food for all people. They are the cheapest, the most easily obtained, and the most readily digested.

**Food Sources of Carbohydrates**

- |               |           |
|---------------|-----------|
| 1. Cereal     | 4. Syrups |
| 2. Vegetables | 5. Sugars |
| 3. Fruits     |           |



**LEARNING ACTIVITIES - continued****Chemical Makeup of Carbohydrates**

Formed from the chemical elements of:

1. Carbon
2. Hydrogen
3. Oxygen

**Classes of Carbohydrates**

1. Monosaccharides (mono means single), (saccharide means sugar)  
Therefore, monosaccharides mean simple sugars.
  - a. Glucose
    - (1) is found in fruits and vegetables
    - (2) is the form in which the body uses carbohydrates
    - (3) can be converted to glycogen and stored in the muscles and liver
  - b. Fructose
    - (1) is found in fruit and honey
    - (2) is found in vegetables
  - c. Galactose
    - (1) produced by the digestion of lactose (milk sugar)
    - (2) is never found free in nature
2. Disaccharides (di means double), (saccharide means sugar)  
Thus, disaccharides mean double sugars.
  - a. Sucrose
    - (1) found in sugar cane, sugar beets and maple sap
    - (2) known in everyday language as "table sugar"
  - b. Maltose
    - (1) found in malt and malt products produced from grain
    - (2) known as "malt sugar"

**LEARNING ACTIVITIES - continued****c. Lactose**

- (1) is found in mammal milk
- (2) is an expensive form of sugar
- (3) is less soluble and sweeter than the other forms of sugar
- (4) has a laxative action which can cause diarrhea if eaten in large amounts

**3. Polysaccharides (poly means many), (saccharide means sugar)  
Thus, polysaccharides mean many sugars.****a. Starches**

- (1) are found in the cellulose walls of grains and vegetables (cellulose broken down by grinding or cooking to make starches available for digestion)
- (2) are abundant over all the earth
- (3) are the cheapest form of body fuel
- (4) make up the largest portion of a menu many times

**b. Cellulose**

- (1) is found in framework of plants (plant fiber, roughage, and bulk)
- (2) stimulates peristalsis (movement) of intestine
- (3) is complex
- (4) is insoluble in hot or cold water
- (5) resists digestion

**c. Glycogen**

- (1) contains carbohydrates that are stored in muscles and liver
- (2) is a quick source of energy in an emergency

**Conditions Related to Carbohydrates**

- 1. Underweight - too few carbohydrates in the diet
- 2. Overweight - too many carbohydrates in the diet

**LEARNING ACTIVITIES - continued**

**Directions:** Read and learn the following terms related to carbohydrates.

1. Catalyst - a chemical substance that brings about a chemical change without being changed itself. Enzymes in the human digestive process are catalysts.
2. Photosynthesis - the process by which green plants change air, water, and sunlight into carbohydrates or sugars by using chlorophyll, the green coloring on plant leaves, as a catalyst.

**Directions:** Complete the following exercise. Check your answers with those given on page 17 of this module.

1. Give two examples of monosaccharides.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
2. Give two examples of disaccharides or double sugars.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
3. Give two examples of polysaccharides or complex sugars.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
4. Glucose is the form of \_\_\_\_\_ in the blood.
5. Glycogen is the form in which \_\_\_\_\_ is \_\_\_\_\_ in the liver and muscles.
6. Name the function of cellulose in the diet.  
\_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_ is the condition due to too many carbohydrates in the diet.
8. \_\_\_\_\_ is the condition due to too few carbohydrates in the diet.

**LEARNING ACTIVITIES - continued****ACTIVITY #3. Functions of Carbohydrates**

**Directions:** Read the following information on the functions of carbohydrates.

1. Carbohydrates provide heat and quick energy for the body.
2. Carbohydrates supply four calories\* of energy for each gram\*\* burned.
3. Carbohydrates provide heat and stored energy after it is changed into body fat.
4. Carbohydrates help fats in final steps of digestion.
5. Carbohydrates stimulate the Islands of Langerhans of the pancreas to make insulin.
6. Insulin breaks down sugar, reducing the amount of sugar in the blood.

\* Calorie is a unit measure of heat or energy.

\*\* Gram is a unit measure of weight.

**Directions:** Complete the following exercise. Check your answers with those given on page 17 of this module.

1. Carbohydrates provide heat and quick \_\_\_\_\_ to the body.
2. Carbohydrates stimulate the pancreas to make \_\_\_\_\_.
3. Carbohydrates help \_\_\_\_\_ in final steps of digestion.
4. Carbohydrates give off \_\_\_\_\_ calories of energy for each gram burned.
5. How many calories will "300 Grams" of carbohydrates give? \_\_\_\_\_

**ACTIVITY #4. Proteins**

**Directions:** Read the following information.

The second of the nutrients is PROTEINS. It is a nutrient made up of amino acids (building blocks of cells).

**Food Sources of Proteins**

1. Best Source
  - a. Meat
  - b. Fish
  - c. Poultry



**LEARNING ACTIVITIES - continued**

- d. Eggs
  - e. Milk
  - f. Cheese
2. Other Good Sources
- a. Peanuts
  - b. Soybeans
  - c. Combinations of grains and vegetables

**Chemical Makeup of Proteins**

Consists of:

- a. Carbon
- b. Hydrogen
- c. Oxygen
- d. Nitrogen
- e. Phosphorus
- f. Sulfur

**Classes of Proteins**

1. Amount (of protein)
- a. High protein foods include:
    - (1) eggs
    - (2) milk
    - (3) meat
    - (4) fish
    - (5) nuts
    - (6) legumes



**LEARNING ACTIVITIES - continued**

- b. Low protein foods include:
  - (1) fruits
  - (2) vegetables
- 2. Source (of protein)
  - a. Animal proteins include:
    - (1) milk
    - (2) meat
    - (3) fish
    - (4) eggs
  - b. Plant protein foods include:
    - (1) peas
    - (2) beans
    - (3) nuts
    - (4) fruits
    - (5) vegetables

**3. Complete proteins**

- a. Contain all the essential amino acids

Twenty-three amino acids are known to be needed by humans for protein building. Most of these are made in the body from carbohydrates plus nitrogen.

- b. Are necessary for growth and to keep body weight
- c. Examples:
  - (1) eggs
  - (2) milk
  - (3) meat
  - (4) cheese
  - (5) fish

**LEARNING ACTIVITIES - continued****4. Incomplete proteins**

- a. Do not contain all eight (8) essential amino acids in sufficient amounts to support life or growth
- b. Can be combined with complete proteins or with certain other incomplete proteins to make a good or complete protein.
- c. When incomplete proteins are combined with complete or incomplete proteins to make a complete protein, all eight (8) essential amino acids are present in sufficient quantity to support life and growth.
- d. Examples:
  - (1) gelatin
  - (2) nuts
  - (3) legumes
  - (4) cereals

**Disease Related to Proteins**

**Kwashiorkor** - a protein deficiency disease, occurs in children when they do not eat enough complete protein.

**Directions:** Complete this exercise by filling in the blanks. Check your answers with those given on page 17 of this module.

1. Meat is one good source of \_\_\_\_\_.
2. Protein is a basic "building block" of every \_\_\_\_\_.
3. Protein is built of smaller units called \_\_\_\_\_.
4. A complete protein \_\_\_\_\_ all the essential \_\_\_\_\_.
5. \_\_\_\_\_ lack all eight essential \_\_\_\_\_ in sufficient amounts to support life and growth.
6. The condition in children due to lack of protein is called \_\_\_\_\_.
7. Define a "complete protein". \_\_\_\_\_  
\_\_\_\_\_
8. Define an "incomplete protein". \_\_\_\_\_  
\_\_\_\_\_

**LEARNING ACTIVITIES - continued****ACTIVITY #5. Functions of Proteins**

**Directions:** Read the following information on the functions of proteins.

1. Proteins build and repair body tissue.
2. Proteins help the body resist disease.
3. Proteins provide a secondary source of heat and energy. (One gram of protein yields four calories.)

**Directions:** Complete this exercise. Check your answers with those given on page 18 of this module.

1. Protein builds and \_\_\_\_\_ tissue.
2. One gram of protein eaten gives \_\_\_\_\_ calories of energy.

**NOTE:** Malnutrition is a real problem in our world!!!

The World Health Organization tells us that about 300 million of 700 million pre-school age children in developing countries and in our own country are malnourished.

Protein-calorie Malnutrition (PCM) is the new term used to describe a syndrome affecting young children. These children lack enough protein in their starchy food diet.

**ACTIVITY #6. Fats**

**Directions:** Read the following information.

The third nutrient is FAT. Fats are the most concentrated source of heat and energy. Each gram of fat yields nine (9) calories. Fats belong to a group of chemicals called lipids.

**Food Sources of Fats**

1. Butter
2. Margarine
3. Oils
4. Cream

**Chemical Makeup of Fats**

1. True fats known as fatty acids.
2. True fats composed of chemical elements: carbon, hydrogen, oxygen (in different chemical arrangement from carbohydrates).

**LEARNING ACTIVITIES - continued****Classes of Fats**

1. Source (of fats)
  - a. Animal fats found in:
    - (1) cream
    - (2) milk
    - (3) meat
    - (4) eggs
    - (5) fish
  - b. Vegetable fats found in:
    - (1) corn
    - (2) nuts
    - (3) olives
    - (4) avocados
    - (5) cotton seed
2. Visibility in food
  - a. Fat content of butter (obvious)
  - b. Fat content of an egg (invisible)
3. Chemical composition
  - a. Saturated fats
    - (1) are fatty acids which contain all the hydrogen possible
    - (2) are solid at room temperature
    - (3) are found in:
      - (a) lard
      - (b) animal fats
      - (c) butter
      - (d) hydrogenated shortening



**LEARNING ACTIVITIES - continued****b. Unsaturated fats**

- (1) are fatty acids which can take on more hydrogen under certain conditions
- (2) are soft or liquid at room temperature
- (3) are found in oils from:
  - (a) animal
  - (b) fish
  - (c) corn
  - (d) cotton seed
  - (e) olives
  - (f) peanuts
  - (g) safflower

**c. Polyunsaturated fats**

- (1) are highly unsaturated fatty acids
- (2) help to lower blood cholesterol levels

**d. Hydrogenated fats**

hydrogen is added to the unsaturated fatty acid

**NOTE:** Did you know that margarine fortified with Vitamins A and D is the same as butter in food value?

**4. Essential fatty acids**

- a. Cannot be constructed in the body
- b. Are necessary for growth and metabolism
- c. Have as their sources:
  - (1) butter
  - (2) egg yolk
  - (3) meat

**LEARNING ACTIVITIES - continued****d. Cholesterol**

- (1) is associated with fats, but chemically it is a sterol (chemical substance)
- (2) is found in all body cells and fluids produced by the liver and stored in the liver
- (3) is the starting chemical in production of sex hormones, adrenal hormones, bile and chemical in the skin that becomes Vitamin D when exposed to sunlight
- (4) prevents water evaporation and makes skin resistant to chemicals
- (5) is necessary part of brain and nerve tissue

**e. Foods high in cholesterol**

- (1) egg yolk
- (2) liver
- (3) kidney
- (4) sweetbreads
- (5) brains
- (6) fish
- (7) fat of meats
- (8) milk

**f. Foods low in cholesterol**

- (1) fruits
- (2) vegetables
- (3) cereals
- (4) syrups
- (5) egg white
- (6) lean meat
- (7) low fat fish
- (8) skim milk

**LEARNING ACTIVITIES - continued**

## g. Blood levels

- (1) Normal blood cholesterol level is 100-150 milligrams cholesterol in 100 cubic centimeters of whole blood.
- (2) High level of blood cholesterol results in deposits-clumps on blood vessel walls or in the liver or in gallstones.

**Diseases Related to Fats**

Cholesterol is also associated with these diseases:

1. Hypertension
2. Nephrosis
3. Diabetes
4. Artherosclerosis

**Directions:** Read and learn the following terms related to fats and related chemistry.

1. Hydrogenation - to add hydrogen to an unsaturated fat. This usually results in a more solid fat. Margarine is an example. Fluid vegetable oils are "Hydrogenated" to form margarine, which is solid.
2. Essential Fatty Acid - acid that the body cannot make. Must be supplied by the diet.
3. Non-Essential Fatty Acid - the body can make it, or does not need fatty acids in this form.
4. Adipose Cells - fat storage cells. Body fat is oxidized or burned up if the caloric intake is less than the amount of calories spent. This is the reason why we lose weight.
5. Lipoprotein - form in which the liver releases fat into the blood. It is made up of proteins plus fat molecules. Fat from lipoproteins in the blood is stored in FAT CELLS and other BODY CELLS in the form of triglycerides.
6. Hyperlipoproteinemia - (sometimes just called hyperlipidemia) a disease caused by high amounts of lipids, such as cholesterol or triglycerides or both, in the blood. These lipids are attached to lipoproteins. Obesity, alcoholism, pancreatic disease and diabetes mellitus lead to hyperlipoproteinemia.

**Directions:** Complete the following exercise. Check your answers with those given on page 18 of this module.

1. A visible fat is \_\_\_\_\_. An example is \_\_\_\_\_.
2. Two sources of animal fats are \_\_\_\_\_ and \_\_\_\_\_.

**LEARNING ACTIVITIES - continued**

3. Two sources of vegetable fats are \_\_\_\_\_ and \_\_\_\_\_ .
4. How can you tell by looking that a fat is saturated? \_\_\_\_\_  
\_\_\_\_\_. Give an example. \_\_\_\_\_
5. How can you tell by looking that a fat is unsaturated? \_\_\_\_\_  
\_\_\_\_\_
6. Give three examples of "essential fatty acids". \_\_\_\_\_
7. Name three functions of cholesterol.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
8. Cholesterol is produced in the body by the \_\_\_\_\_
9. Low cholesterol foods include: \_\_\_\_\_  
\_\_\_\_\_
10. High cholesterol foods include: \_\_\_\_\_  
\_\_\_\_\_

**ACTIVITY #7. Functions of Fats**

**Directions:** Read the following information on the functions of fats.

1. Fats serve as a concentrated source of heat and energy.
2. Fats carry fat-soluble vitamins - A, D, E, K.
3. Fats add taste to foods.
4. Stored fats help to maintain body temperature by acting as insulation.
5. Stored fats can be used as a reserve supply of body fuel.
6. Stored fats help to hold organs in place and to protect them from injury.



**LEARNING ACTIVITIES - concluded**

**Directions:** Complete this exercise. Check your answers with those given on page 18 of this module.

Six functions of fats in the body are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**ANSWERS****ACTIVITY #2**

- 1a. glucose
- b. fructose
- 2a. sucrose
- b. maltose
- 3a. glycogen
- b. cellulose
4. sugar
5. carbohydrates, stored
6. Cellulose adds bulk and also forms and aids in the elimination of body waste.
7. Overweight
8. Underweight

**ACTIVITY #3**

1. energy
2. insulin
3. fats
4. four
5.  $300 \times 4 = 1200$  calories

**ACTIVITY #4**

1. protein
2. cell
3. amino acids
4. contains or has amino acids (i.e., meat, milk, cheese, fish)
5. Incomplete proteins, amino acids (i.e., cereals, gelatin, legumes, nuts)
6. Kwashiorkor
7. Check your answer by referring to the previous material on complete proteins.
8. Check your answer by referring to the previous material on incomplete proteins.

**ANSWERS - concluded****ACTIVITY #5**

1. repairs
2. four

**ACTIVITY #6**

1. seen, butter
2. cream/milk and meat/fish
3. corn/nuts and olives/cottonseed
4. solid at room temperature, lard/shortening
5. soft or liquid at room temperature (i.e., oils - safflower, olive)
6. linolenic, linoleic, arachidonic acid
7.
  - a. Cholesterol is necessary part of brain and nerve tissue.
  - b. Cholesterol is the starting chemical in production of many hormones.
  - c. Cholesterol prevents water evaporation in the skin.
8. liver
9. lean meat, fruits, vegetables, cereals, syrups, egg white
10. egg yolk, organ meats, fats of meat, milk

**ACTIVITY #7**

1. Serves as concentrated source of energy.
2. Carries fat soluble vitamins A, D, E, and K.
3. Adds taste to foods.
4. Stored fat helps to maintain body temperature by acting as insulation.
5. Stored fat can be used as reserve supply of body fuel.
6. Stored fat helps to hold organs in place, protects them.

## NUTRITION

### Module C2 - Water, Minerals, Vitamins



## RATIONALE

Nutrients are the substances given to the body by the food we eat. Water, minerals and vitamins regulate body functions. We will discuss these three nutrients in this module.

## PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the characteristics, the functions, and conditions related to water.
2. Identify at least four minerals and their functions.
3. Identify properties of fat-soluble and water-soluble vitamins.
4. Identify the function, the best food source, and a deficiency disease or condition due or related to vitamin deficiency for each vitamin.

## LEARNING ACTIVITIES

**Directions:** All the information you need to complete this module successfully is included in the learning activities. Read the information on the following pages and complete all the exercises. If you have questions or problems, ask your instructor to help you.

### ACTIVITY #1. Water or H<sub>2</sub>O

**Directions:** Read the following information.

#### Characteristics of Water

1. Is the main nutrient of the body
2. Makes up 60-75% of the total body weight
3. Is found within tissue cells and between the cells
4. Is a part of all body fluids
5. Is found inside cells (about 50%), in fluid around cells (15%), in the blood (5%), and the remainder is in other body fluids



**LEARNING ACTIVITIES - continued****Functions of Water**

1. Solvent
  - a. Most of the chemicals in the body are in solution.
  - b. Water aids digestion by softening food.
2. Regulator of Body Temperature
  - a. As water moves in and out of cells, it equalizes temperature.
  - b. Water lost through the skin in perspiration and from the urinary tract acts to cool the body.
3. Transportation

Nutrients and body secretions are moved throughout the body as the water moves in and out of cells (i.e., carries water soluble Vitamins B, C).
4. Excretory Agent
  - a. Waste products are removed from the body and dissolved in urine, perspiration and feces.
  - b. Water adds bulk in the intestinal tract.
5. Lubricant

The moving parts of the body are surrounded with water to prevent friction and wear.

**Chemical Makeup of Water**

1. Hydrogen ( $H_2$ )
2. Oxygen (O)
3.  $H_2 + O = H_2O = \text{water}$

**Human Body Needs Water**

1. The body receives water:
  - a. by drinking it
  - b. by eating foods with a high fluid content, such as watermelon and other fruits
  - c. through metabolism and chemical changes of food

**LEARNING ACTIVITIES - continued**

2. The body loses water:
  - a. through the kidneys as urine
  - b. through the bowel as part of the bulk of feces
  - c. through the skin in perspiration
  - d. through the lungs as moisture in the air
3. Abnormal losses of water happen in:
  - a. vomiting
  - b. hemorrhaging
  - c. seepage of tissue fluids from burns
  - d. draining wounds
  - e. localized edema which draws fluid away from other parts of the body
4. Intake of water must equal the output of water each day
  - a. 3000 cc intake per day recommended
    - (1) 1500-2000 cc or 6-8 glasses of water daily
    - (2) 1000 cc from milk, tea, coffee, broth and other foods
  - b. Conditions caused by imbalance of intake and output of water
    - (1) Dehydration - lack of water
    - (2) Edema - retention of water

**Directions:** Complete this exercise on water. Check your answers with those given on page 14 of this module.

1. Water makes up \_\_\_\_\_ % of the total body weight.
2. Water is found \_\_\_\_\_ cells, \_\_\_\_\_ cells, and is a part of all body fluids.
3. About \_\_\_\_\_ % of the water is found inside cells, \_\_\_\_\_ % is found in fluid around cells and \_\_\_\_\_ % in the blood. The remainder is in other body fluids.
4. Water makes up part of the blood. TRUE                      FALSE
5. Water acts as a lubricant. TRUE                      FALSE

**LEARNING ACTIVITIES - continued**

- |                                                             |      |       |
|-------------------------------------------------------------|------|-------|
| 6. Water seldom regulates temperature.                      | TRUE | FALSE |
| 7. Water carries nutrients via cell membrane.               | TRUE | FALSE |
| 8. Intake should equal output (of water daily).             | TRUE | FALSE |
| 9. Lack of sufficient water is called "dehydration".        | TRUE | FALSE |
| 10. Fluid retention is called "edema".                      | TRUE | FALSE |
| 11. The recommended total daily water intake is _____ cc's. |      |       |

**ACTIVITY #2. Minerals**

**Directions:** Read the following information relating to minerals (including the chart).

**Characteristics of Minerals**

1. Minerals are simple chemical agents.
2. There are about 19 minerals used by the body; 17 are essential.
3. Four percent of the body is mineral, with calcium and phosphorous in the bones the major portion.

**Functions of Minerals**

1. Compose a part of all cells and body fluids
2. Form the structural framework of body as part of bones and teeth
3. Assist in regulating vital life processes by maintaining an acid-base balance
4. Regulate metabolism of enzymes
5. Aid in transmission of nerve impulses

# MINERAL CHART FOR ACTIVITY #2

| MINERALS                                   | FUNCTIONS                                                                                                                                                                                                                                                                                   | FOOD SOURCES                                                                                                                   | DEFICIENCIES                                                                                                                                         | FACTORS IN ABSORPTION                                      |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Calcium                                    | <ol style="list-style-type: none"> <li>1. Needed for skeletal formation</li> <li>2. Needed for blood clotting</li> <li>3. Needed for formation of teeth</li> <li>4. Assists normal activities of muscles, including heart muscle</li> <li>5. Assists in nervous system functions</li> </ol> | Milk - milk products<br>Cheese<br>Sardines<br>Dark green leafy vegetables<br>Fish                                              | Rickets - retarded growth abnormal development of bones<br>Poorly formed bones maybe brittle or porous<br>Poorly formed teeth<br>Slow blood clotting |                                                            |
| Phosphorus<br>(works closely with Calcium) | <ol style="list-style-type: none"> <li>1. Helps in formation of bones and teeth</li> <li>2. Assists in absorption and transportation of nutrients</li> <li>3. Is necessary for the metabolism of protein, carbohydrate and fat for the release of energy from these nutrients</li> </ol>    | Milk<br>Milk products<br>Cereals<br>Legumes<br>Eggs<br>Fish<br>Meat                                                            | Rickets<br>Poor bone formation                                                                                                                       | Vitamin D assists in absorption                            |
| Iron                                       | <ol style="list-style-type: none"> <li>1. Helps form hemoglobin (red substance of blood cells)</li> <li>2. Carries oxygen to tissues</li> </ol>                                                                                                                                             | Liver<br>Oysters<br>Dried Beans<br>Peas, Lentils<br>Lean beef<br>Dark green leafy vegetables<br>Whole grain cereal<br>Egg yolk | Iron deficiency anemia<br>listlessness<br>weakness<br>gastric disturbance<br>pale-dry skin<br>shortness of breath<br>dizziness                       | Retarded by lack of Vitamin C<br>lack of hydrochloric acid |
| Iodine                                     | <ol style="list-style-type: none"> <li>1. Assists in formation of thyroid gland hormone, Thyroxine</li> </ol>                                                                                                                                                                               | Sea foods<br>Iodized Salt                                                                                                      | Causes simple thyroid goiter<br>In young, Cretinism, physical and mental retardation                                                                 |                                                            |



| MINERALS                                                                      | FUNCTIONS                                                                                                                                                                                                                                                          | FOOD SOURCES                                                                    | DEFICIENCIES                                      | FACTORS IN ABSORPTION                                                                                           |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Potassium</b><br>(form "salts")<br>(electrolyte)                           | <ol style="list-style-type: none"> <li>1. Helps maintain normal water balance</li> <li>2. Helps maintain normal acid-base balance</li> <li>3. Acts on enzymes in protein and carbohydrate metabolism</li> <li>4. Needed before glycogen can be produced</li> </ol> | Cereals<br>Fruits (bananas - apricots)<br>Vegetables                            | Causes muscle weakness<br>Causes cardiac symptoms | Diarrhea, vomiting<br>Diuretic medications<br>Postoperative conditions<br>Diabetic coma<br>Chronic lung disease |
| <b>Sodium</b><br>(form "salts")<br>(electrolyte)                              | <ol style="list-style-type: none"> <li>1. Helps maintain normal water balance</li> <li>2. Helps maintain acid-base balance</li> <li>3. Helps in absorption of glucose</li> <li>4. Needed for normal nerve activity</li> </ol>                                      | Plant sources<br>Preservatives in canned foods<br>Processed foods<br>Table salt | Dehydration - shock                               | Vomiting, diarrhea<br>Profuse sweating<br>Adrenal insufficiency                                                 |
| <b>Chloride</b><br>(form "salts")<br>(works with Sodium, also an electrolyte) | <ol style="list-style-type: none"> <li>1. Helps maintain water balance</li> <li>2. Helps maintain acid-base balance</li> <li>3. Needed as part of hydrochloric acid in stomach</li> </ol>                                                                          | Table salt                                                                      |                                                   | Vomiting, diarrhea<br>Profuse sweating<br>Adrenal insufficiency                                                 |
| <b>Sulfur</b>                                                                 | <ol style="list-style-type: none"> <li>1. Needed for formation of blood clots</li> </ol>                                                                                                                                                                           | Protein sources                                                                 |                                                   |                                                                                                                 |
| <b>Magnesium</b>                                                              | <ol style="list-style-type: none"> <li>1. Assists many enzymes</li> <li>2. Assists in conduction of nerve impulses</li> <li>3. Preserves tooth enamel</li> </ol>                                                                                                   | Soybeans<br>Whole grains<br>Nuts<br>Cocoa                                       | Tetanus - convulsions                             | Alcoholism -- severe protein deficiency<br>Prolonged intravenous therapy of deficient magnesium fluids          |

Trace elements - needed in minute quantities - provided in balanced diet

Selenium  
 Manganese  
 Copper  
 Cobalt  
 Fluorine  
 Zinc

**LEARNING ACTIVITIES - continued**

**Directions:** Match the following terms with their functions. Check your answers with those given on page 14 of this module.

- |                                                                                       |                                 |
|---------------------------------------------------------------------------------------|---------------------------------|
| _____ 1. An essential component of hemoglobin and in the formation of red blood cells | a. Phosphorus                   |
| _____ 2. Needed for blood clotting and bone and teeth development                     | b. Small quantities             |
| _____ 3. Needed to prevent rickets                                                    | c. Calcium                      |
| _____ 4. Helps thyroid gland to function normally                                     | d. Iodine                       |
| _____ 5. "Salts" of the body                                                          | e. Sodium, Potassium, Chlorides |
| _____ 6. Some "trace elements"                                                        | f. Iron                         |

**ACTIVITY #3. Vitamins (Fat Soluble and Water Soluble)**

**Directions:** Read the following information on vitamins.

Vitamins are organic compounds whose presence in the diet regulates metabolism and makes possible a more efficient utilization of carbohydrates, protein, and fat within the body.

**Characteristics of Vitamins**

1. Vitamins lack calories.
2. Each vitamin has a specific job to do.
3. Deficiency diseases are usually the result from the lack of more than one vitamin. The word "deficiency" is used to indicate degrees of shortages.

**Classes of Vitamins**

1. Fat-soluble vitamins
  - a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K

**LEARNING ACTIVITIES - continued****2. Water-soluble vitamins****a. Vitamin C****b. Vitamin "B" complex**

- (1) Vitamin B<sub>1</sub>, Thiamin
- (2) Vitamin B<sub>2</sub>, Riboflavin
- (3) Vitamin B, Niacin
- (4) Vitamin B<sub>6</sub>, Pyridoxine
- (5) Vitamin B<sub>12</sub>, Cyanocobalamin
- (6) Vitamin B<sub>3</sub>, Pantothenic Acid
- (7) Folic Acid, Folacin

**General Properties of Fat-Soluble and Water-Soluble Vitamins****FAT-SOLUBLE VITAMINS**

- 1. Soluble in fat and fat solvents.
- 2. Intake in excess of daily need stored.
- 3. Excess not excreted in urine.
- 4. Deficiency symptoms slow to develop.
- 5. Not absolutely necessary in diet every day.
- 6. Contain only the elements carbon, hydrogen, and oxygen.

**WATER-SOLUBLE VITAMINS**

- 1. Soluble in water.
- 2. Minimal storage of dietary excess.
- 3. Excess excreted in urine.
- 4. Deficiency symptoms often develop rapidly.
- 5. Must be supplied in diet every day.
- 6. Contain the elements C, H, O, and nitrogen, and in some cases others such as cobalt or sulfur.

**Terms Related to Vitamins****I. Avitaminosis**

- a. Without vitamins or vitamin deficiency
- b. May be due to dietary lack or a problem in absorption

**LEARNING ACTIVITIES - continued****2. Hypervitaminosis**

- a. An excessive amount of vitamins taken in may cause toxic symptoms.
- b. Vitamins should be taken under a physician's supervision.

**3. Antivitamins**

Substances that prevent normal use of a vitamin

**Directions:** Complete the exercise on fat-soluble and water-soluble vitamins. Check your answers by referring to the previous material in this activity.

**A. Name the four FAT-SOLUBLE VITAMINS:**

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

**B. Name six WATER-SOLUBLE VITAMINS:**

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |

**C. Define "WATER-SOLUBLE VITAMINS":** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**D. Define "FAT-SOLUBLE VITAMINS":** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**ACTIVITY #4. Vitamin Chart**

**Directions:** Read and study the information on the following chart. For each vitamin you will need to know the function, food source, and related vitamin deficiency disease or condition.



# VITAMIN CHART FOR ACTIVITY #4

| VITAMINS                        | KEYPOINTS   | FUNCTIONS                                                                                                                                                                                                                                                                                          | FOOD SOURCES                                                      | DEFICIENCIES                                                                                                                                                                                                                                                                  | FACTORS IN ABSORPTION                               |
|---------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Vitamin A                       | Fat soluble | <ol style="list-style-type: none"> <li>Promotes growth and repair of body tissues</li> <li>Helps resist infections</li> <li>Assists in good vision especially "night vision"</li> <li>Helps form tooth enamel</li> <li>Helps adrenal glands in production of corticosterone</li> </ol>             | Liver<br>Yellow vegetables<br>Dark green leafy vegetables         | Night blindness<br>Retarded growth<br>Weakened respiratory system<br>Increases susceptibility to infection<br>Poor tooth enamel formation<br><br><u>Hypervitaminosis</u><br>Bone fragility<br>Spleen enlargement<br>Pruritis<br>Nausea<br>Menstrual disorders<br>Loss of hair |                                                     |
| Vitamin D<br>"Sunshine Vitamin" | Fat soluble | <ol style="list-style-type: none"> <li>Needed for calcium and phosphorus metabolism</li> <li>Assists normal tooth formation</li> </ol>                                                                                                                                                             | Sunshine<br>Cod liver oil<br>Butter<br>Cream<br>Egg yolk<br>Liver | Rickets in children<br>Poor bone and tooth formation<br><br><u>Hypervitaminosis</u><br>Nausea, loss of appetite<br>Headache<br>Changes in bone structure<br>Renal calculus (stone) formation                                                                                  |                                                     |
| Vitamin E                       | Fat soluble | <ol style="list-style-type: none"> <li>Act as "Antioxidant" - removes oxygen or prevents oxygen from combining with a substance - in this way prevents destruction of Vitamin A, Vitamin C and fatty acids</li> <li>Prevents destruction of red blood cells, muscles, and other tissues</li> </ol> | Seed germ oils<br>Green vegetables<br>Egg yolk                    |                                                                                                                                                                                                                                                                               | (stored in fatty tissue, pituitary, adrenal glands) |

| VITAMINS                                   | KEYPOINTS     | FUNCTIONS                                                                                                                                                                                                                             | FOOD SOURCES                                                                                    | DEFICIENCIES                                                                                                                      | FACTORS IN ABSORPTION                                                                            |
|--------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Vitamin K</b>                           | Fat Soluble   | <ol style="list-style-type: none"> <li>1. Needed for normal clotting of blood</li> <li>2. Needed for liver function</li> </ol>                                                                                                        | Liver<br>Milk<br>Eggs<br>Soybean oil<br>Green leafy vegetables<br>Fruits                        | Slow blood clotting time<br>Hemorrhages                                                                                           | Deficiency caused by lack of absorption - happens in liver disease, large dosages of salicylates |
| <b>Vitamin B<sub>1</sub></b><br>Thiamin    | Water soluble | <ol style="list-style-type: none"> <li>1. Helps convert carbohydrates to energy</li> <li>2. Helps digestion</li> <li>3. Helps heart, nerves, muscles function properly</li> </ol>                                                     | Pork<br>Fish<br>Poultry<br>Eggs<br>Soybeans<br>Peanuts<br>Wholegrain cereals                    | Retarded growth<br>Loss of appetite<br>Nerve disorders<br>Poor digestion<br>Fatigue<br>Beri-Beri condition                        |                                                                                                  |
| <b>Vitamin B<sub>2</sub></b><br>Riboflavin | Water soluble | <ol style="list-style-type: none"> <li>1. Helps normal function of eyes</li> <li>2. Helps keep skin and mucosa healthy</li> <li>3. Helps use carbohydrates</li> <li>4. Promotes well-being and vitality</li> </ol>                    | Milk-milk products<br>Heart, kidney, liver<br>Green leafy vegetables<br>Eggs<br>Poultry<br>Fish | Reddened eyes,<br>Cataract-like symptoms in eyes<br>Cracks in corners of mouth<br>Inflammation of tongue<br>Dry, scaly skin-aging |                                                                                                  |
| <b>Vitamin B</b><br>Niacin                 | Water soluble | <ol style="list-style-type: none"> <li>1. Helps keep skin and tongue healthy</li> <li>2. Helps in the function of the stomach, intestines, nervous system</li> </ol>                                                                  | Meat<br>Liver<br>Poultry<br>Peanuts<br>Fish<br>Beans<br>Whole Grains                            | Pellagra - lesions in corner of mouth<br>diarrhea<br>muscle weakness<br>soreness of tongue<br>skin lesions                        |                                                                                                  |
| <b>Vitamin B<sub>6</sub></b><br>Pyridoxine | Water soluble | <ol style="list-style-type: none"> <li>1. Needed for protein, carbohydrate, protein metabolism</li> <li>2. Used in treatment of nausea in pregnancy and deep X-ray treatment</li> <li>3. Helps in production of antibodies</li> </ol> | Liver<br>Yeast<br>Wheat germ<br>Pork<br>Milk<br>Potatoes<br>Legumes                             | Skin problems<br>Anemia<br>Weakness                                                                                               |                                                                                                  |

| VITAMINS                                         | KEYPOINTS     | FUNCTIONS                                                                                                                                                                                                                                                     | FOOD SOURCES                                                                            | DEFICIENCIES                                                                                                | FACTORS IN ABSORPTION |
|--------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Vitamin B<sub>12</sub></b><br>Cyanocobalamin  | Water soluble | <ol style="list-style-type: none"> <li>1. Needed for nervous tissue</li> <li>2. Helps in metabolism of iron</li> <li>3. Necessary for prevention of pernicious anemia (extrinsic factor)</li> </ol>                                                           | Liver<br>Kidney<br>Milk<br>Fish<br>Eggs<br>Cheese<br>Lean meat                          | Pernicious anemia                                                                                           |                       |
| <b>Vitamin B<sub>3</sub></b><br>Pantothenic Acid | Water soluble | <ol style="list-style-type: none"> <li>1. Needed for fat, carbohydrate, protein metabolism</li> <li>2. Needed for production of cholesterol, adrenal steroids and hemoglobin</li> </ol>                                                                       | All foods<br>Egg yolk<br>Liver, kidneys<br>Yeast<br>Potatoes<br>Whole grains            | Fatigue, muscle cramps<br>Burning feet<br>Susceptibility to upper respiratory conditions                    |                       |
| <b>Folic Acid</b><br>Folacin                     | Water soluble | <ol style="list-style-type: none"> <li>1. Needed for protein metabolism</li> <li>2. Needed for growth and production of red blood cells</li> </ol>                                                                                                            | Liver<br>Kidney<br>Nuts<br>Legumes<br>Green leafy vegetables<br>Whole grain cereals     | (Can change the blood picture of pernicious anemia - regulations by law limit amount of Folic acid)         |                       |
| <b>Vitamin C</b><br>Ascorbic acid                | Water soluble | <ol style="list-style-type: none"> <li>1. Needed for growth</li> <li>2. Helps keep blood vessel walls strong</li> <li>3. Helps resist upper respiratory infections</li> <li>4. Helps heal wounds and burns</li> <li>5. Helps in absorption of iron</li> </ol> | Citrus fruits<br>Tomatoes<br>Raw cabbage<br>Green leafy vegetables<br>Berries<br>Melons | Bruise easily<br>Fractures heal slowly<br>Scurvy condition<br>sore gums<br>loose teeth<br>bleeding in mouth |                       |

**LEARNING ACTIVITIES - continued**

**Directions:** Complete the chart below. Check your answers with the Vitamin Chart on the previous pages.

| <u>Vitamin</u>          | <u>Function</u> | <u>Best Food Source</u> | <u>Deficiency Diseases Or Condition</u> |
|-------------------------|-----------------|-------------------------|-----------------------------------------|
| Vitamin A               | _____           | _____                   | _____                                   |
| Vitamin K               | _____           | _____                   | _____                                   |
| Vitamin D               | _____           | _____                   | _____                                   |
| Vitamin C               | _____           | _____                   | _____                                   |
| Vitamin E               | _____           | _____                   | _____                                   |
| Vitamin B <sub>1</sub>  | _____           | _____                   | _____                                   |
| Vitamin B <sub>2</sub>  | _____           | _____                   | _____                                   |
| Niacin                  | _____           | _____                   | _____                                   |
| Vitamin B <sub>6</sub>  | _____           | _____                   | _____                                   |
| Vitamin B <sub>12</sub> | _____           | _____                   | _____                                   |



**ANSWERS****ACTIVITY #1**

1. 60-75%
2. within the tissue, between
3. 50%, 15%, 5%
4. true
5. true
6. false
7. true
8. true
9. true
10. true
11. 3000 cc's

**ACTIVITY #2**

1. f
2. c
3. a
4. d
5. e
6. b

## **NUTRITION**

### **Module D - Diet Therapy**



## **RATIONALE**

Foods that patients eat are ordered or prescribed by doctors, planned by dietitians, and served by nurses. This module will help you to understand why patients must have different diets.

## **PERFORMANCE OBJECTIVES**

To the instructor's satisfaction you will:

1. Identify the different diets, the foods included in each specific diet, and the conditions for prescribing special diets.
2. Identify the factors in planning and using a diabetic diet.
3. Describe a characteristic which identifies each specific diet.

## **LEARNING ACTIVITIES**

**Directions:** Read all the information given and complete the exercises in this module. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. If you need help, ask your instructor to assist you.

### **ACTIVITY #1. Diets**

**Directions:** Read the following information.

Illness may change the ability of a person to eat, to digest, or to use foods. The health team must provide a diet of foods that is as normal as possible.

The dietitian will plan a diet that is based on the doctor's prescription that includes the needs and the likes of the patient. This activity will discuss therapeutic modifications of the general or regular diet.

Diets will be modified or changed in one of five ways.

1. Number of meals each day
2. Consistency of the food (liquid or solid)
3. Nutrients increased
4. Nutrients decreased
5. Elimination of certain foods

**LEARNING ACTIVITIES - continued****Regular Diet**

1. Is the most common diet
2. Is also known as a full, house, general diet, or diet as tolerated
3. Has no restrictions in food choices
4. Allows the patient to eat or to drink anything
5. Provides the patient with 2000 to 2500 calories counting all of the protective foods (meat, eggs, milk, citrus fruits, vegetables, whole grain or enriched bread, and butter)

**Exercise 1.**

**Directions:** Complete this exercise on regular diets. Check your answers with the previous information given.

1. List four names which may be used to identify the most common diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
2. What foods are restricted in a regular diet? \_\_\_\_\_

**Liquid Diets****Full Liquid Diet**

1. Should be used for limited time
2. Produces 1300 to 1500 calories
3. Consists of all foods that are liquid at room and body temperature:
  - a. milk beverages
  - b. fruit juices
  - c. ice cream
  - d. gelatins
  - e. tea

**LEARNING ACTIVITIES - continued**

- f. carbonated drinks
- g. coffee
- 4. Could be used under these conditions:
  - a. acute infections
  - b. fever
  - c. patient too ill to chew
  - d. progression from clear to regular diet after surgery
  - e. gastrointestinal upset

**Clear Liquid Diet**

- 1. May be called surgical liquid diet
- 2. Furnishes about 500 calories
- 3. Includes all liquids you can see through:
  - a. tea
  - b. coffee
  - c. fat-free broth
  - d. apple juice
  - e. water
  - f. 7-Up
- 4. Is given to patients for 24-48 hours
- 5. Could be used under these conditions:
  - a. dehydration
  - b. acute vomiting
  - c. diarrhea
  - d. very ill patients who have had surgery of the digestive system



**LEARNING ACTIVITIES - continued**

6. Has as its purpose:

- a. to relieve thirst and dehydration
- b. to start peristalsis in recent postoperative patients

**Exercise 2.**

**Directions:** Complete this exercise on liquid diets. Check your answers with those given on page 34 of this module.

1. List six foods included in a clear liquid diet.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_
- f. \_\_\_\_\_

2. State two purposes of the clear liquid diet.

- a. \_\_\_\_\_
- b. \_\_\_\_\_

3. The patients who receive a clear liquid diet may have what conditions?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

4. How is the full liquid diet different from the clear liquid diet?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**LEARNING ACTIVITIES - continued**

5. Patients receiving the full liquid diet may have what conditions?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

**Tube Feeding Diet**

- 1. Is ordered individually by physician
- 2. Includes 2500 calories per day
- 3. Consists of regular solid foods that have been put through a blender (blenderized with milk)
- 4. Causes less diarrhea than when formula is used
- 5. Is given to the patient through a nasal gastric tube - inserted into the stomach
- 6. May be used for patients with these conditions:
  - a. after gastrectomy
  - b. anal surgery
  - c. severe burns
  - d. unconsciousness
  - e. disease involving the esophagus or patients unable to swallow or chew

To tube feed a patient:

- 1. Allow the feeding to warm to room temperature (Cold liquids directly into the stomach may result in constriction of the blood vessels in the stomach and cramping pains.)
- 2. Check the nasal gastric tube to be sure it is still in the stomach before starting the feeding.
  - a. Withdraw a small amount of stomach contents with a syringe; or
  - b. place open end of gastric tube in water; if bubbles appear, tube is in the lungs; or
  - c. inject a small amount of air into the tube while someone listens with a stethoscope at the apex of the stomach; a gurgling sound will be heard if the tube is in place.

**LEARNING ACTIVITIES - continued**

3. Allow the tube feeding to enter the stomach by gravity.
4. Allow a small amount of water to run into the tubing after the tube feeding has run in to wash it out. That way, the feeding will not have a chance to crumble and clog the tube.

**Exercise 3.**

**Directions:** Complete the exercise on tube feeding diets. Check your answers with the previous information. If you have any questions, ask your instructor to help you.

1. Define a tube feeding diet.

---

---

---

2. List two foods used in a tube feeding diet.

- a. 

---
- b. 

---

3. State six conditions for which this diet would be used.

- a. 

---
- b. 

---
- c. 

---
- d. 

---
- e. 

---
- f. 

---

**Soft Diet**

1. Is modified in consistency so that "roughage" is removed
2. Requires little chewing
3. Includes these foods:
  - a. very tender meats
  - b. vegetables
  - c. fruits

**LEARNING ACTIVITIES - continued**

4. Does not include any of the following foods that are irritating to the gastrointestinal system:
  - a. nuts
  - b. fibers
  - c. cellulose
  - d. salads
  - e. spices
  - f. fried foods
  - g. tough meats
  - h. very rich pastries
5. Has as its purpose:
  - a. to progress a patient from a liquid to a regular diet
  - b. to be used following gastrointestinal upset or GI surgery

**Mechanical Soft Diet**

1. Contains any food which is soft or ground
2. Does not have to be chewed
3. Does not include the following foods:
  - a. nuts
  - b. fibers
  - c. cellulose
  - d. salads
  - e. spices
  - f. fried foods
  - g. tough meats
  - h. pastries

**LEARNING ACTIVITIES - continued**

4. Is given to the patient who:
  - a. cannot chew well
  - b. does not have teeth

**Exercise 4.**

**Directions:** Complete this exercise on soft and mechanical soft diets. Check your answers with the previous information.

1. Explain the difference between a soft diet and a mechanical soft diet.

Soft: \_\_\_\_\_

Mechanical soft: \_\_\_\_\_

2. Patients who have \_\_\_\_\_ will have a mechanical soft diet.
3. A progression diet between liquids and a regular diet is a \_\_\_\_\_ diet.

**Bland Diet**

1. Is moderately low in roughage
2. Is very soft
3. Is not spicy as in "hot chili"
4. Is not hot in terms of temperature
5. Is not irritating to the gastrointestinal system
6. Includes these foods:
  - a. milk
  - b. tender meats
  - c. tender, young, or canned fruits and/or vegetables
7. Is given to patients with these conditions:
  - a. colitis
  - b. gastric ulcers



**LEARNING ACTIVITIES - continued****Low Residue (Low fiber) Diet**

1. Should be used for a limited time only
2. Must be completely absorbed
3. Rests the gastrointestinal tract, but lacks minerals and vitamins
4. Includes these foods:
  - a. tender meats
  - b. clear fat-free soup
  - c. eggs
  - d. refined cereals
  - e. fruit juice
  - f. gelatins
  - g. white toast or crackers
5. Does not include these foods:
  - a. whole grain cereals
  - b. milk
  - c. cheese
  - d. fruits
  - e. vegetables
  - f. excessive seasonings
6. May be ordered for patients with these conditions:
  - a. severe diarrhea
  - b. ulcerative colitis
  - c. before and after surgery of intestinal tract

**High Residue (High fiber) Diet**

1. Is a normal diet with increased fiber content
2. Adds bulk
3. Is used in the treatment of constipation

**LEARNING ACTIVITIES - continued**

4. Includes these foods:
  - a. raw fruits
  - b. vegetables (use skin when possible)
  - c. whole grain cereals
  - d. leafy green vegetables
5. Does not include these foods:
  - a. excessive seasonings
  - b. refined cereal

**Exercise 5.**

**Directions:** Complete the following exercise. Check your answers with the information previously given. If you have questions, ask your instructor to help you.

1. List the foods included in a bland diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
2. A bland diet is prescribed for patients with what conditions?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
3. What foods are permitted in a low residue diet?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
  - f. \_\_\_\_\_

**LEARNING ACTIVITIES - continued**

4. A low residue diet would be ordered for patients with what conditions?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

5. What foods are allowed in a high residue diet?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

**High Caloric Diet**

1. Is a diet with increased caloric intake (3000 to 5000 calories per day)
2. Has a gradual increase of food intake
3. Consists of three full meals plus two snacks during the day
4. Includes all foods plus extra portions of the following:
  - a. sugar
  - b. butter
  - c. cream
  - d. sauces
5. Avoids these low calorie foods:
  - a. lettuce
  - b. too many fats as they affect appetite (gives feeling of satisfaction since they are digested more slowly)
6. Is given to patients with these conditions:
  - a. underweight
  - b. hyperthyroidism
  - c. pneumonia
  - d. fevers

**LEARNING ACTIVITIES - continued****Low Caloric Diet**

1. Is a normal diet with reduced caloric intake
2. Reduces calories by eliminating some carbohydrates and fats
3. May be deficient in minerals and vitamins if diet is less than 1000 calories
4. Includes these foods:
  - a. bulky low calorie fruits
  - b. vegetables
  - c. adequate fluids
  - d. lean meats
  - e. eggs
  - f. skim milk
5. Does not include these foods:
  - a. fats
  - b. pastries
  - c. creams
  - d. sauces
  - e. gravies
6. May be ordered for patients with these conditions:
  - a. obesity
  - b. cardiovascular diseases
  - c. hypertension

**Exercise 6.**

**Directions:** Complete this exercise on high caloric and low caloric diets. Answers can be found on page 34 and 35 of this module.

1. What is the difference between a high caloric and a low caloric diet?

---

---

**LEARNING ACTIVITIES - continued**

2. What is the purpose of a high caloric diet? \_\_\_\_\_  
\_\_\_\_\_
3. List the foods included in a high caloric diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. A high caloric diet is prescribed for patients with these conditions. Name them.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
5. What is the purpose of a low caloric diet? \_\_\_\_\_  
\_\_\_\_\_
6. List two foods that are omitted in a low caloric diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
7. List three foods that are included in a low caloric diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
8. A low caloric diet is prescribed for patients with these conditions. List them.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_



**LEARNING ACTIVITIES - continued****Low Fat Diet**

1. Is a normal diet with limited amounts of fats
2. Contains only most easily digested fats
3. Lacks vitamin A which must be given as a supplement
4. Includes these foods:
  - a. lean meat
  - b. egg whites
  - c. cottage cheese
  - d. skim milk
  - e. fruits
  - f. vegetables low in fat
5. Does not include these foods:
  - a. egg yolk
  - b. fatty meats
  - c. sauces
  - d. gravies
  - e. whole milk
  - f. butter
6. May be ordered for patients with these conditions:
  - a. obesity
  - b. liver and gallbladder conditions
  - c. digestive disturbances

**Low Cholesterol Diet**

1. Contains less cholesterol than a regular diet
2. Cholesterol is normally found in all body cells and fluids, but is stored in the liver

**LEARNING ACTIVITIES - continued**

3. Abnormally high cholesterol levels may result in deposits on blood vessel walls or in the liver or in the gallbladder
4. Includes these foods:
  - a. skim milk
  - b. lean meats
  - c. fish
  - d. margarine
  - e. vegetable oil
5. Does not include these foods:
  - a. butter
  - b. whole milk
  - c. egg yolks
  - d. pork
6. Is prescribed for patients with these conditions:
  - a. Atherosclerotic heart disease
  - b. Hyperlipidemia
  - c. Hyperlipoproteinemia

**Exercise 7.**

**Directions:** Complete the following exercise on low fat and low cholesterol diets. Answers can be found on page 35 of this module.

1. Define a low fat diet. \_\_\_\_\_  
\_\_\_\_\_
2. List three foods included in a low fat diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

**LEARNING ACTIVITIES - continued**

3. List two foods that must be omitted from a low fat diet.  
\_\_\_\_\_
4. State three conditions for which a low fat diet may be used.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
5. Cholesterol is found in \_\_\_\_\_ and \_\_\_\_\_.
6. List four foods included in a low cholesterol diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
7. List two foods that must be omitted from a low cholesterol diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
8. State three conditions in which a low cholesterol type diet may be used.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

**High Protein Diet**

1. Is a normal diet with increased amounts of protein
2. Is low in fats
3. Is used for the repair of tissues and body growth
4. Includes these foods:
  - a. extra portion of milk
  - b. eggs
  - c. lean meat

**LEARNING ACTIVITIES - continued**

- d. cheese
- e. fish
- 5. Does not include foods high in fat:
  - a. cream
  - b. gravy
  - c. avocado
- 6. Is given to patients with these conditions:
  - a. burns
  - b. anemia
  - c. kidney disease (nephritis and nephrosis)
  - d. liver diseases (hepatitis and cirrhosis)
  - e. celiac disease

**Low Protein Diet**

- 1. Decreases the amount of protein consumed in the body
- 2. Is used when the kidneys cannot remove nitrogen waste (the end product of protein metabolism)
- 3. Is restricted in proteins to the amount the body can handle
- 4. Includes most foods on the regular diet
- 5. Does not include these foods:
  - a. meat
  - b. milk
  - c. cheese
  - d. eggs
  - e. fish

**LEARNING ACTIVITIES - continued**

6. Is prescribed for patients with these conditions:

- a. kidney failure
- b. nephritis

**Exercise 8.**

**Directions:** Complete the following exercise on high protein and low protein diets. Answers can be found on page 36 of this module.

1. List five foods included in a high protein diet.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

2. State three conditions for which a high protein diet may be used.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

3. When would protein be restricted in the normal diet?

\_\_\_\_\_  
\_\_\_\_\_

4. State one condition for which a low protein diet may be used.

\_\_\_\_\_

**Low Sodium Diet**

- 1. Limits or eliminates all sources of salt (sodium chloride)
- 2. Restricts the most common mineral, sodium



**LEARNING ACTIVITIES - continued**

3. Limits or does not include these foods:
  - a. pork
  - b. salt (no salt allowed on the meal tray)
  - c. carbonated beverages (soda pop)
4. Is prescribed for patients with these conditions:
  - a. cardiac (heart patients)
  - b. toxemia of pregnancy
  - c. cardiovascular disease
  - d. any patient taking cortisone medication
  - e. kidney disease

**Exercise 9.**

**Directions:** Complete this exercise on low sodium diets. Answers can be found on page 36 of this module.

1. List three items that are omitted or limited in the low sodium diet.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

2. State five conditions that restrict sodium.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

**LEARNING ACTIVITIES - continued****Activity #2. Diet Therapy for Diabetics**

**Directions:** Read the following information.

**Planning the Diabetic Diet**

Proper diet planning is an important TREATMENT for a diabetic. Each diabetic's diet is specially and carefully prescribed just for him/her. In some mild cases of the disease, especially among elderly people, a proper diet alone may control the disease where all concentrated sweets and all rich foods are eliminated.

Since obesity (overweight) is one of the things which can help a person to develop Diabetes, often an important part of the diet therapy is to get rid of excess weight. This is done by following a diet which contains fewer calories than the body actually needs. The body is then forced to burn its own fat for energy, and thus a patient loses weight. When normal weight is reached, the calorie allowance is increased to maintain a normal, healthy body weight. Keeping a normal body weight is one of the most important things a diabetic can do to keep the blood sugar in control.

However, even when the body weight is normal, the diabetic must observe certain dietary rules. The physician will prescribe the proper diet including the number of calories needed by the diabetic patient. These calories are then divided between the three major nutrients - carbohydrates (sugars and starches), proteins, and fats.

In a normal diet, 50-60% of the calories come from carbohydrates. In the diabetic diet, only 45% of the total calories come from carbohydrates. The reason for this is simple. REMEMBER, the diabetic cannot secrete insulin to transport glucose from the bloodstream to body cells. Therefore, if the intake of carbohydrates is the same as that of a normal person, the diabetic will go into hyperglycemia. The protein part of the diabetic diet is usually a high percentage of the total calorie allowance, because the diabetic needs this protein to build and to repair body tissues. The remaining calories allowed are used as a fat allowance.

The physician decides the specific number of calories needed by each diabetic. In order to make that decision, the following information is needed:

1. The patient's present weight (Patient may need to reduce.)
2. The severity of the patient's disease
3. The amount of the patient's physical activity
4. The patient's age and sex
5. The amount and kind of medication taken by the patient

**LEARNING ACTIVITIES - continued**

Generally, the diabetic can eat the same foods as other members of the family. The foods will be very nutritious and will come from the BASIC FIVE FOOD GROUPS you have already studied. They are:

1. Milk Group
2. Meat Group
3. Bread and Cereal Group
4. Fruit and Vegetable Group
5. Fats, Sweets, Alcohol Group

The physician has worked hard to plan an individual diet for each diabetic patient. However, it is the patient's responsibility to adhere to this prescribed diet. Some general dietary rules the diabetic patient must follow include:

1. Foods must be measured accurately: Foods are generally measured after cooking.
2. Foods must be prepared properly: Meats should be baked, boiled or broiled. Foods may not be fried unless the meal allows for a "fat exchange".

Vegetables may be prepared with the family meals, but the diabetic's portion must be removed before extra fat or flour is added.

3. Special foods: Fruits must be fresh or canned in water. Most canned fruits are packed in a sugary syrup, which the diabetic patient cannot eat.
4. Foods to avoid: All of these foods are concentrated carbohydrates.
  - a. sugar
  - b. candy
  - c. honey
  - d. jam & jelly
  - e. marmalade
  - f. syrups
  - g. pie
  - h. cakes
  - i. candy coated gum
  - j. fried, scalloped or creamed foods

**LEARNING ACTIVITIES - continued**

k. beer

l. wine or other alcoholic beverages

**NOTE:** Alcohol is immediately converted to sugar in the body.

5. Eat only those foods on the diet.
6. Never skip a meal.
7. Never eat between meals, unless the diet calls for a bedtime snack.

**Using the Diabetic Diets and the Exchange Lists**

When the physician has decided on the number of calories the diabetic should have each day, which could range from 1000 to 3000 calories, the patient is given a specific diet to follow based on the number of calories allowed. The diabetic can have varied and satisfying meals as long as the dietary rules already mentioned are followed.

The foods allowed in the diet are selected from EXCHANGE LISTS. There are seven exchange lists and they can be found on pages 25-29 of this module. Within each exchange list, the foods are interchangeable; because, in the amounts shown, each food in a specific list provides approximately the same amount of carbohydrates, fats, and proteins. For example, when the menu calls for one bread exchange, any item in List 4 may be eaten in the amount allowed. Look at the Bread List "List 4" on page 27. If two bread exchanges are allowed, the diabetic could choose two different items from List 4 or two of the same foods.

The SPECIFIC PURPOSE of the EXCHANGE SYSTEM is to give the diabetic patient some VARIETY in the diet, while "sticking to" the allowed calorie intake. The physician will give the patient a menu which tells how many food exchanges can be eaten from each list for each meal throughout the day. The patient can then look to the lists allowed and pick the desired foods.

## LEARNING ACTIVITIES 2 continued

## EXAMPLES OF LIQUID DIETS FOR DIABETICS

CALORIES - 1200

LIQUID DIETS (may be used to replace any one of the meals).

FULL LIQUID

|              |             |              |                   |
|--------------|-------------|--------------|-------------------|
| Eggnog       | milk<br>egg | 1/2 cup<br>1 | 120 gm.<br>50 gm. |
| Orange juice |             | 1 cup        | 200 gm.           |
| Milk         |             | 3/4 cup      | 180 gm.           |

CLEAR LIQUID

|                  |  |         |         |
|------------------|--|---------|---------|
| Clear bouillon   |  | 1 cup   |         |
| Orange juice     |  | 1 cup   | 200 gm. |
| Grapefruit juice |  | 1/2 cup | 100 gm. |
| Gelatin dessert  |  | 1/2 cup | 100 gm. |

BEDTIME FEEDING (Only when directed by physician)

|                                     |               |
|-------------------------------------|---------------|
| 1/2 milk exchange<br>(1/2 cup milk) | will add      |
|                                     | approximately |
| 1/2 bread exchange<br>(2 crackers)  | 120 calories  |
|                                     | to daily diet |

|               |         |
|---------------|---------|
| Carbohydrates | 125 gm. |
| Protein       | 60 gm.  |
| Fat           | 50 gm.  |

CALORIES - 1800

LIQUID DIETS (may be used to replace any one of the meals).

FULL LIQUID

|             |             |              |                   |
|-------------|-------------|--------------|-------------------|
| Eggnog      | milk<br>egg | 2/3 cup<br>1 | 160 gm.<br>50 gm. |
| Custard     | milk<br>egg | 1/2 cup<br>1 | 200 gm.<br>50 gm. |
| Grape juice |             | 3/4 cup      | 180 gm.           |

CLEAR LIQUID

|                  |  |         |         |
|------------------|--|---------|---------|
| Orange juice     |  | 1 cup   | 200 gm. |
| with sugar       |  | 2 tsp   | 10 gm.  |
| Grapefruit juice |  | 1/2 cup | 100 gm. |
| with sugar       |  | 2 tsp   | 10 gm.  |
| Gelatin dessert  |  | 1/2 cup | 100 gm. |

BEDTIME FEEDING (Only when directed by physician)

|                                     |               |
|-------------------------------------|---------------|
| 1/2 milk exchange<br>(1/2 cup milk) | will add      |
|                                     | approximately |
| 1/2 bread exchange<br>(2 crackers)  | 120 calories  |
|                                     | to daily diet |

|               |         |
|---------------|---------|
| Carbohydrates | 125 gm. |
| Protein       | 60 gm.  |
| Fat           | 50 gm.  |



**LEARNING ACTIVITIES - continued**

ON THE FOLLOWING PAGES, YOU WILL FIND "THE SEVEN FOOD EXCHANGE LISTS".

DIRECTIONS: CHOOSE ONE DIET AND MAKE OUT A MENU FOR YOURSELF USING THE EXCHANGE LISTS. SHOW THE COMPLETED DIABETIC'S DIET TO YOUR INSTRUCTOR.

REMEMBER!!!!!!

YOU CANNOT EXCHANGE A FOOD FROM ONE LIST, FOR A FOOD FROM ANOTHER LIST! FOR EXAMPLE, YOU CANNOT EXCHANGE ONE FRUIT EXCHANGE FOR ANOTHER BREAD EXCHANGE. THAT'S CHEATING!!!!!! THE EXCHANGE LIST ONLY MEANS THAT YOU CAN CHOOSE ANY FOOD FROM THE SAME LIST, SINCE IT CONTAINS THE SAME NUMBER OF NUTRIENTS. THE EXCHANGE LISTS MERELY PROVIDE FOR A VARIETY OF FOODS IN A DIET.

**LEARNING ACTIVITIES - continued****THE SEVEN FOOD EXCHANGE LISTS****List 1 Free Foods** (allowed as desired, need not be measured)

**SEASONINGS:** celery salt, cinnamon, garlic salt, garlic, mustard, mint, lemon, nutmeg, parsley, saccharin, pepper, and other sugarless sweeteners, spices, vanilla, and vinegar.

**OTHER FOODS:** tea or coffee (without sugar or cream), bouillon, fat-free broth, rennet tablets, unflavored gelatin, dill or sour pickles, cranberries (without sugar), rhubarb (without sugar).

**VEGETABLES: Group A** - minimal calories or insignificant carbohydrates. You may eat as much as desired of the raw vegetables. If a cooked vegetable is eaten, limit the amount to one cup.

|                                                                               |                        |
|-------------------------------------------------------------------------------|------------------------|
| Asparagus                                                                     | Lettuce                |
| Brussels sprouts                                                              | Okra                   |
| Broccoli                                                                      | Mushrooms              |
| Cauliflower                                                                   | Radishes               |
| Cabbage                                                                       | Peppers - green or red |
| Chicory                                                                       | String beans           |
| Celery                                                                        | Sauerkraut             |
| Cucumbers                                                                     | Tomatoes               |
| Eggplant                                                                      | Summer squash          |
| Greens: chard, beets, collard<br>dandelion, kale, mustard, spinach,<br>turnip | Watercress             |

**List 2 Vegetable Exchanges**

Each individual portion supplies approximately 7 grams of carbohydrates and 2 grams of protein, or 36 calories.

**VEGETABLES: Group B** (One serving equals 1/2 cup or 100 grams.)

|             |               |
|-------------|---------------|
| Carrots     | Rutabagas     |
| Beets       | Pumpkin       |
| Onions      | Winter squash |
| Peas, green | Turnips       |

## LEARNING ACTIVITIES - continued

List 3 Fruit Exchanges (fresh, dried, or canned without sugar)

Each individual portion supplies approximately 10 grams of carbohydrates or 40 calories.

| <u>Fruits</u>   | <u>Household Measurements</u> | <u>Weight of Portion</u> |
|-----------------|-------------------------------|--------------------------|
| Apple           | 1 small (2" diam.)            | 80 grams                 |
| Applesauce      | 1/2 cup                       | 100 grams                |
| Apricots, dried | 4 halves                      | 20 grams                 |
| Apricots, fresh | 2 medium                      | 100 grams                |
| Berries         | 1 cup                         | 150 grams                |
| Banana          | 1/2 small                     | 50 grams                 |
| Blueberries     | 2/3 cup                       | 100 grams                |
| Cantaloupe      | 1/4 (6" diam.)                | 200 grams                |
| Dates           | 2                             | 15 grams                 |
| Cherries        | 10 large                      | 75 grams                 |
| Figs, fresh     | 2 large                       | 50 grams                 |
| Grapefruit      | 1/2 small                     | 125 grams                |
| Grapes          | 12                            | 75 grams                 |
| Honeydew melon  | 1/8 (7")                      | 150 grams                |
| Orange          | 1 small                       | 100 grams                |
| Orange juice    | 1/2 cup                       | 100 grams                |
| Peach           | 1 medium                      | 100 grams                |
| Pear            | 1 small                       | 100 grams                |
| Pineapple       | 1/2 cup                       | 80 grams                 |
| Raisins         | 2 tablespoons                 | 15 grams                 |
| Tangerine       | 1 large                       | 100 grams                |
| Watermelon      | 1 cup                         | 175 grams                |
| Prunes, dried   | 2                             | 25 grams                 |

**LEARNING ACTIVITIES - continued****List 4 Bread Exchanges**

Each individual portion supplies approximately 15 grams of carbohydrates and 2 grams of protein or 68 calories.

| <u>Breads</u>                           | <u>Household Measurements</u> | <u>Weight of Portion</u> |
|-----------------------------------------|-------------------------------|--------------------------|
| Bread                                   | 1 slice                       | 25 grams                 |
| Muffin                                  | 1 (2" diam.)                  | 35 grams                 |
| Biscuit, roll                           | 1 (2" diam.)                  | 35 grams                 |
| Cornbread                               | 1 1/2 2" cube                 | 35 grams                 |
| Cereal, cooked                          | 1/2 cup                       | 100 grams                |
| Cereal, dry<br>(flakes or puffed)       | 3/4 cup                       | 20 grams                 |
| Rice or grits cooked                    | 1/2 cup                       | 100 grams                |
| Spaghetti, noodles, etc.                | 1/2 cup                       | 100 grams                |
| Crackers, round                         | 6 to 8                        | 20 grams                 |
| Crackers, soda                          | 3                             | 20 grams                 |
| Crackers, saltine                       | 5                             | 20 grams                 |
| Crackers, oyster                        | 20 (1/2 cup)                  | 20 grams                 |
| Crackers, graham                        | 2                             | 20 grams                 |
| Vegetables                              |                               |                          |
| Beans (lima, navy,<br>etc.), dry cooked | 1/2 cup                       | 90 grams                 |
| peas (split peas,<br>etc.), dry, cooked | 1/2 cup                       | 90 grams                 |
| baked beans, no pork                    | 1/4 cup                       | 50 grams                 |
| Parsnips                                | 2/3 cup                       | 125 grams                |
| Corn                                    | 1/3 cup                       | 80 grams                 |
| Potato, white, baked,<br>or boiled      | 1 (2" diam.)                  | 100 grams                |
| Potatoes, white, mashed                 | 1/2 cup                       | 100 grams                |
| Sponge cake, plain                      | 1 1/2" cube                   | 25 grams                 |
| Ice cream                               | 1/2 cup                       | 70 grams                 |

**LEARNING ACTIVITIES - continued****List 5 Meat Exchanges**

Each individual portion supplies approximately 7 grams of protein and 5 grams of fat or 73 calories. (30 grams equal 1 ounce)

| <u>Meat/Meat<br/>Substitutes</u>                                           | <u>Household<br/>Measurements</u> | <u>Weight<br/>of Portion</u> |
|----------------------------------------------------------------------------|-----------------------------------|------------------------------|
| Meat and poultry<br>(beef, lamb, pork, liver,<br>chicken, etc.) (med. fat) | 1 slice (3" x 2"<br>x 1/8")       | 30 grams                     |
| Frankfurter                                                                | 1 (8-9 per. pound)                | 50 grams                     |
| Cold cuts                                                                  | 1 slice                           | 45 grams                     |
| Salmon, tuna, crab                                                         | 1/4 cup                           | 30 grams                     |
| Codfish, mackerel, etc.                                                    | 1 slice                           | 30 grams                     |
| Sardines                                                                   | 3 medium                          | 30 grams                     |
| Oysters, shrimp, clams                                                     | 5 small                           | 45 grams                     |
| Cheese, cottage                                                            | 1/4 cup                           | 45 grams                     |
| Cheese, cheddar,<br>American                                               | 1 slice                           | 30 grams                     |
| *Peanut butter                                                             | 2 tablespoons                     | 30 grams                     |
| Egg                                                                        | 1                                 | 50 grams                     |

\*Limit the intake of peanut butter to 1 exchange per day unless allowance is made for carbohydrates in the diet plan.



**LEARNING ACTIVITIES - continued****List 6 Fat Exchanges**

Each individual portion supplies approximately 5 grams of fat or 45 calories.

| <u>Fats</u>         | <u>Household Measurements</u> | <u>Weight of Portion</u> |
|---------------------|-------------------------------|--------------------------|
| Bacon, crisp        | 1 slice                       | 5 grams                  |
| Butter or margarine | 1 teaspoon                    | 10 grams                 |
| Cream, heavy        | 1 tablespoon                  | 15 grams                 |
| Cream, light        | 2 tablespoons                 | 30 grams                 |
| French dressing     | 1 tablespoon                  | 15 grams                 |
| Cream cheese        | 1 tablespoon                  | 15 grams                 |
| Oil or cooking fat  | 1 tablespoon                  | 5 grams                  |
| Mayonnaise          | 1 teaspoon                    | 5 grams                  |
| Olives              | 5 small                       | 50 grams                 |
| Nuts                | 6 small                       | 10 grams                 |
| Avocado             | 1/8 (4" diam.)                | 25 grams                 |

**List 7 Milk Exchanges**

Each individual portion supplies approximately 12 grams of carbohydrates, 8 grams of protein, and 10 grams of fat or 170 calories.

| <u>Milk</u>      | <u>Household Measurements</u> | <u>Weight of Portion</u> |
|------------------|-------------------------------|--------------------------|
| Milk, evaporated | 1/2 cup                       | 120 grams                |
| Milk, whole      | 1 cup                         | 240 grams                |
| Milk, skim       | 1 cup                         | 240 grams                |
| *Milk, powdered  | 1/4 cup                       | 35 grams                 |
| *Buttermilk      | 1 cup                         | 240 grams                |

\*Add 2 fat exchanges if the milk is fat free.

## LEARNING ACTIVITIES - continued

**Exercise**

**Directions:** Complete this exercise on diet therapy for a diabetic. Answers can be found on pages 36 and 37 of this module.

1. Proper diet planning for the diabetic is considered a \_\_\_\_\_.
2. In some mild cases \_\_\_\_\_ alone may control the disease.
3. Since obesity is one thing which helps to develop diabetes, the first aim of diet therapy is to \_\_\_\_\_.
4. A \_\_\_\_\_ body weight is one of the most important things in helping a diabetic control the blood sugar level.
5. Calories come from the three major nutrients:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
6. The diabetic diet is generally: (Circle the correct one.)
  - a. High protein, low carbohydrates, and low fat
  - b. High carbohydrates, low fat, and low protein
  - c. Low fat, high carbohydrates, and high protein
  - d. Low carbohydrates, low fat, and low protein
7. The \_\_\_\_\_ prescribes the diabetic diet.
8. List five things the physician considers when prescribing a diabetic diet.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
9. State the seven general dietary rules the diabetic must follow.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

## LEARNING ACTIVITIES - continued

- d. \_\_\_\_\_
- e. \_\_\_\_\_
- f. \_\_\_\_\_
- g. \_\_\_\_\_
10. The purpose of the "food exchange lists" is to \_\_\_\_\_ in the diet.
11. The diabetic needs a diet HIGH in protein to help \_\_\_\_\_ and \_\_\_\_\_ body tissues.
12. Within each "exchange list" foods are \_\_\_\_\_.
13. The above answer means that you can exchange a bread exchange for a fruit exchange. TRUE FALSE (Circle One)

## ACTIVITY #3. Review Exercises on Liquid, General, Soft, and Special Diets

## Exercise 1.

**Directions:** Match the right-hand column with the correct diet in the left-hand column. Answers can be found on pages 37 and 38 of this module.

LIQUID/GENERAL

- |                          |                                                                     |
|--------------------------|---------------------------------------------------------------------|
| 1. ____ Surgical liquids | A. Pot roast, string beans, salad, baked potato, ice cream, coffee. |
| 2. ____ Tube feeding     | B. Tea, broth, jello, 7-Up.                                         |
| 3. ____ Full liquids     | C. Soft cooked or pureed vegetables, meats, no spices.              |
| 4. ____ Clear liquids    | D. Ice cream, milk, fruit juice, tea.                               |
| 5. ____ Regular diet     | E. Blenderized foods or milk-based formulas.                        |

SOFT

- |                         |                                                               |
|-------------------------|---------------------------------------------------------------|
| 1. ____ Bland           | A. Diet used if the patient has no teeth.                     |
| 2. ____ Soft            | B. For the patient with gastric ulcers.                       |
| 3. ____ Mechanical soft | C. For patient with severe diarrhea or ulcerative colitis.    |
| 4. ____ Low residue     | D. Included on progression diet from liquids to regular diet. |

**LEARNING ACTIVITIES - continued****SPECIAL DIETS**

- |                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| 1. ____ Diabetic          | A. No salt on meal tray.                                    |
| 2. ____ Increased protein | B. Used for loss of weight.                                 |
| 3. ____ Decreased sodium  | C. Gallbladder disease.                                     |
| 4. ____ Low caloric       | D. Kidney disease.                                          |
| 5. ____ Fat restricted    | E. Used for burned patients and for repair of body tissues. |
| 6. ____ Decreased protein | F. Used to increase body weight.                            |
| 7. ____ High caloric      | G. Heart disease.                                           |
| 8. ____ Low cholesterol   | H. Exchange list regulating carbohydrates.                  |

**Exercise 2.**

**Directions:** Write the name of the specific diet described in the following statements. Answers can be found on page 38 of this module.

1. Give four names for the diet that requires NO restrictions upon food choices.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
2. The diet that includes clear broth, tea, and 7-Up is the \_\_\_\_\_ diet.
3. The diet that includes milk, custard, and ice cream is the \_\_\_\_\_ diet.
4. The diet which omits salt from the meal tray is the \_\_\_\_\_ diet.
5. The diet that includes foods that are high in calories is the \_\_\_\_\_ diet.
6. The diet that omits foods that are hard to digest is the \_\_\_\_\_ diet.
7. The diet that omits rich and strongly-flavored foods is the \_\_\_\_\_ diet.

**LEARNING ACTIVITIES - concluded**

8. The diet that includes chopped foods only is the \_\_\_\_\_ diet.
9. The diet that limits the amount of butter, margarine, cream, and eggs is the \_\_\_\_\_ diet.
10. The diet that includes milk formula and liquid forms of meats and vegetables is the \_\_\_\_\_ diet.



**ANSWERS****ACTIVITY #1****Exercise 2.**

1.
  - a. tea or coffee
  - b. broth (fat-free)
  - c. 7-Up
  - d. apple juice
  - e. jello
  - f. water, ice chips
2.
  - a. to relieve thirst and to maintain fluid balance
  - b. to start peristalsis in recent postoperative patients
3.
  - a. dehydration
  - b. vomiting
  - c. diarrhea
  - d. postsurgery
4. Full liquid diets include all foods that are liquid at room and body temperature. A clear liquid diet includes all liquids that you can see through.
5.
  - a. acute infections
  - b. fevers
  - c. too ill to chew
  - d. post surgical or gastrointestinal upsets

**Exercise 6.**

1. The high caloric diet is to increase body weight and the low caloric diet is to decrease body weight.
2. The purpose of a high caloric diet is to increase body weight.
3.
  - milk
  - breads
  - butter
  - creams
  - desserts
4.
  - underweight
  - hyperthyroidism
  - pneumonia
  - fevers
5. The purpose of a low caloric diet is to decrease body weight.
6.
  - breads
  - butter
  - creams
  - saucers
  - desserts

**ANSWERS - continued**

7. vegetables  
fruit  
lean meats  
eggs  
skim milk
8. obesity  
cardiovascular diseases  
high blood pressure

**Exercise 7.**

1. A low fat diet is a normal diet with limited amounts of fats.
2. lean meats  
egg whites  
skim milk  
cottage cheese  
fruits  
vegetables low in fat
3. pork  
egg yolks  
whole milk  
butter  
sauces  
gravies
4. gallbladder disease  
heart disease  
liver disease  
obesity  
digestive disturbances
5. Body cells and fluids
6. skim milk  
lean meat  
fish  
margarine  
vegetable oil
7. butter  
whole milk  
egg yolks  
pork
8. a. atherosclerotic heart disease  
b. hyperlipidemia  
c. hyperlipoproteinemia

**ANSWERS - continued****Exercise 8.**

1. lean meat  
milk  
cheese  
eggs  
fish
2. burns  
anemia  
liver disease (hepatitis)  
kidney disease (nephritis)  
celiac disease
3. Protein would be restricted when the kidney cannot remove the waste product of protein metabolism.
4. Kidney failure or nephritis

**Exercise 9.**

1. a. pork  
b. table salt  
c. carbonated beverages (soda pop)
2. a. cardiac - heart patients  
b. toxemias  
c. cardiovascular disease  
d. renal (kidney) disease  
e. patient taking cortisone medication

**ACTIVITY #2**

1. treatment
2. diet
3. reduce weight
4. normal
5. a. carbohydrates  
b. proteins  
c. fats
6. a
7. physician

**ANSWERS - continued**

8.
  - a. weight
  - b. severity of disease
  - c. age and sex
  - d. amount of physical activity
  - e. medication
9.
  - a. measure food
  - b. prepare food properly
  - c. fresh or water packed fruits
  - d. avoid concentrated carbohydrates
  - e. eat only those things on the exchange lists
  - f. never skip a meal
  - g. never eat between meals
10. provide variety
11. build and repair
12. interchangeable
13. FALSE

**ACTIVITY #3****Exercise 1.****LIQUID/GENERAL**

1. B
2. E
3. D
4. B
5. A

**SOFT**

1. B
2. D
3. A
4. C

**ANSWERS - concluded****SPECIAL DIETS**

1. H
2. E
3. A
4. B
5. C
6. D
7. F
8. G

**Exercise 2.**

1.
  - a. Regular
  - b. House
  - c. Normal
  - d. General
2. clear liquid (surgical)
3. full liquid (medical)
4. low sodium or NaCl (sodium chloride)
5. high caloric
6. low residue - bland
7. soft
8. mechanical soft
9. low fat
10. tube feeding



**CULTURAL FOOD PATTERNS**

**By**

**Catherine Benavidez-Clayton, R.N., M.S.  
University of Colorado School of Nursing**

**August 1976**

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Catherine Benavidez-Clayton, R.N., M.S.  
October 1980**

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WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION  
MODELS FOR INTRODUCING CULTURAL DIVERSITY IN NURSING CURRICULA

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NOT FOR PUBLICATION OR REPRINT

**To the student:**

**This module is included in the Nutrition Unit #5 because of the importance of food patterns in the numerous cultures. It is presented as supplementary reading and you will be allowed to test yourself on the content; however, there will be a scheduled class discussion on the material in the module and you will be expected to participate in the discussion.**

**The module is presented as it was written by Catherine Benavidez-Clayton, R.N., M.S.**

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GENERAL INSTRUCTIONS TO THE STUDENT:

1. This module reflects a continuation of the overall curriculum as related to cultural components of individualized patient care and nurse-patient relationships. Please read all instructions carefully.
2. This module has one central objective and several specific objectives.
3. A pre-test will precede content to evaluate your specific areas of strengths and weaknesses related to the overall content and specific objectives.
4. A post-test will be given upon completion of the content. Subtract five (5) points for each incorrect answer, a score of 95 - 100 will represent successful completion of the module.



## CULTURAL FOOD PATTERNS

Chicano, Black, Native American, Asian

### CENTRAL OBJECTIVE

To acquaint students with the cultural and nutritional value of foods preferred by ethnic groups as revealed through a historical and analytical perspective and to develop an awareness that foods are valued quite apart from their nutritional value and that many food practices are related to ethnic origin.

### SPECIFIC BEHAVIORAL OBJECTIVES

After reading the required material and completing the required exercises, the student will be able to:

1. Describe the importance of food as a socialization process.
2. Analyze the nutritional value of the two selected diets according to the basic four food groups. (See Appendix B)
3. List at least one food staple of each cultural group: Chicano, Black, Asian, Native American: Navajo, Pueblo, Sioux.
4. List three foods which are believed to result in diseases of "hot and cold" imbalances as perceived by the Mexican/Chicano.

## PRE-TEST

True - False

1.   \_\_\_ Geography is reflected in traditional food patterns.
2.   \_\_\_ The harmony of health, as perceived by the Navajo, may be disrupted by indulging in excesses of food and drink.
3.   \_\_\_ A common beverage of the Mexican/Chicano, usually served to the sick, is called atole.
4.   \_\_\_ Guisado is a term utilized in Mexican/Chicano culture in describing food without flavoring.
5.   \_\_\_ Sashimi is a term used to describe the typical Asian dish of batter fried shrimp.
6.   \_\_\_ Cheese made from goat's milk is a favorite food of the Navajo Indian.
7.   \_\_\_ Chili peppers are not native to the American Indian cuisine, but were acquired from Spanish invaders.
8.   \_\_\_ The main beverage of the Sioux is coffee, consumed by young and old.
9.   \_\_\_ Corn is the grain of choice utilized in the Black diet.
10.  \_\_\_ Beef and pork heart are utilized in the Black diet, prepared as a luncheon meat.

PRE-TEST ANSWERS

1. T
2. T
3. T
4. F
5. F
6. T
7. T
8. T
9. T
10. T

## CULTURAL FOOD PATTERNS

### Introduction:

Food and eating can signify many things as they are intimately woven into the social and cultural life of an individual. In the anxiety that accompanies the crisis of hospitalization and separation from family and friends, food assumes even greater importance. Poor appetite is often associated with illness, but oftentimes the patient may use food as a vehicle to express anxiety about his illness. He may rebel against his situation as a dependent hospitalized patient and may demand food he knows is not available. When a patient is hospitalized, there is generally no area in which he has control; but by means of selective menus and daily visits from dieticians, food is one area where the patient's opinions are solicited. Food thus serves as a mechanism of providing the patient with the feeling of having some control over his immediate environment. Awareness of the significance of the social and psychological implications of food patterns is of extreme importance to those who are in contact with patients. (Jenner, p. 1)

Food not only serves to provide nourishment to the body, but for many people it is a symbol of warmth, friendliness and social acceptance. The meal oftentimes serves as an avenue for expressing friendship. Meals are for family, close friends and special events. Those friends who have never been invited into our home to share a meal have presumably another threshold of intimacy to cross. The popular barbeque is one event which seems to serve to bridge this gap between intimacy and distance. Drinks are for strangers and acquaintances, "those we only know at drinks we know less intimately." (Douglas, p. 66)

Emotional feelings are involved with certain foods and to many people certain foods may trigger a flood of life-long memories. These foods are valued, not necessarily for their nutritional value, but many for their relationship to cultural and religious origins. A popular expression suggests, "you are what you eat." Food is a mirror that reflects a thousand phases of personal, national and international history. Geography is reflected in food, so is climate, religion, superstition and taboos. Food remembers where people traveled, who their grandmothers were and from what part of the world their ancestors hailed. It is thus an important dimension of the total care of the individual. (Jenner, p. 47)

A number of cultural food patterns are represented in American community life. These different food patterns continue to be used among the older family members, while members of the younger generations may only experience traditional cultural food patterns on special occasions or religious holidays. (Williams, p. 265) Traditional food patterns have strong meanings and serve to bind families and cultural communities in close fellowship. For some cultural groups; food, especially where there is an abundance of it, symbolizes success in overcoming the struggle for survival. Religious beliefs may also serve to influence food patterns. Fasting, during the Lenten Season, is considered to be one way of giving thanks for the vast abundance one has managed to reap during this life. The Navajo Indian believes that "keeping one's feet and mind on the cornpollen path of beauty, is the only way to preserve harmony and harmony is health." Allowing oneself to indulge in excesses of food and drink can be one way of disrupting this harmony. (Groman, p. 3)

In describing the foods of a specific ethnic group, it is sometimes assumed that all people adhere to that pattern. Obviously, this is not true. The Asian living in the midwest most



likely will follow a different food pattern than the Asian living on the Pacific Coast because of the economics involved in obtaining traditional foods. Food preferences will also be recognized among individuals within a given ethnic group. Not every Chicano will prefer a taco; in fact, among the younger generation, his preference just might be a Big Mac.

It is obvious that a number of cultural food patterns will exist in a society as diverse as ours. Realizing this, it is essential that the health care giver recognize widely varying patterns, learning to capitalize upon the desirable characteristics of any given diet. (Robinson, p. 216)

#### Mexican/Chicano Food Patterns:

A blending of the food habits of the past and present - an amalgamation of Indian, Spanish, Mexican and American - form the basis for the food patterns of the Mexican-American/Chicano. Three foods which are basic to this group are: pinto beans, red and green chili, and white flour and/or corn tortillas. Nutritionally, beans are a source of protein, green chili a source of Vitamin C. Variations and additions are found in different regions or among those of different income levels. Those of low income use very little meat, usually as a flavoring for beans, soups and stews. (Robinson, p. 221)

When an animal is butchered, the Chicano prepares and consumes all organ meats. It is considered wasteful to discard any portion of the animal. (New Mexico Extension Circular, p. 8) Beef, lamb, chicken, and kid goat are preferred meats. Common vegetables are corn and squash. Corn is served in a variety of ways: fresh or canned, steamed while green and dried on the cob (chicos), and corn similar to hominy (pesole). Ground red chili powder is essential to most dishes. Garlic and onion, oregano, salt, cumino and cilantro are common additions for flavoring. Common beverages which are usually served to sick people are: 1. atole (gruel), which consists of blue corn meal and milk, and 2. poleadas (white flour gruel), consisting of white flour, sugar, water, salt and anise seed. Both beverages are served hot. (New Mexico Extension Circular, p. 33-34)

Guisar, which has no exact English translation, is the most popular word in preparing Mexican food. Roughly speaking, it means to dress up food, perhaps only by adding a little onion or a pinch of oregano; good food always deserves a finishing touch. Food must never taste flat, but it will if it is not guisado. (New Mexico Extension Circular, p. 1)

To some Mexican/Chicanos, food has taken on another meaning, especially if he adheres to the concept of "hot and cold" food imbalances which may result in illness. Food is classified as hot or cold, and the maintenance of a healthy state requires care to avoid mixing of incompatible foods. "The qualities of 'hot and cold' in this system have nothing to do with physiological effect." (Clark, p. 165) For example, infants and small children are believed to be unusually vulnerable to "cold stomach", an imbalance producing symptoms of colic. Babies, therefore, should not be given large amounts of "cold" foods as melon and citrus (a fact which might account for the resistance demonstrated by some mothers to giving infants daily orange juice). (Clark, p. 166)



# HOT AND COLD FOODS

| <u>Food Types</u>   | <u>Very Hot</u>                 | <u>Hot</u>                                                                                                                                                       | <u>Temperate</u>           | <u>Cold</u>                                                                                                               | <u>Very Cold</u>                                                  |
|---------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Fruits & Vegetables | Chili;<br>Green & red<br>Garlic | Onion                                                                                                                                                            |                            | Beans, green<br>Beets<br>Cabbage<br>Cauliflower<br>Carrots<br>Coriander<br>Parsley<br>Peas<br>Pumpkin<br>Squash<br>Turnip | Cucumber<br>Pickles<br>Spinach<br>Tomato<br>Melon<br>Orange juice |
| Meats & Milk        | Crackles                        | Capon<br>Fish<br>Milk -<br>goat's<br>Pork<br>Turkey                                                                                                              | Goat                       | Beef<br>Boar<br>Lamb<br>Cow's milk<br>Mutton<br>Rabbit                                                                    | Hen - pullet<br>Breast milk                                       |
| Starches & Sweets   | White beans                     | Barley<br>Wheat bread<br>Chick peas<br>Sweet<br>potatoe<br>Irish<br>potatoe<br>Rice<br>Sweet rolls<br>Corn<br>tortillas<br>Wheat<br>Honey<br>Brown sugar<br>Salt | Pinto Beans<br>White sugar | Red beans<br>Lentils                                                                                                      |                                                                   |

(Clark, p. 166)

### Asian Food Patterns: Chinese - Japanese

Japanese food patterns are in some ways similar to Chinese. Rice is a basic constituent of the diet, soy sauce (high in salt) is used for seasoning and tea is the main beverage. There are some differences as the Japanese diet contains more seafood, especially raw fish. Of course, as one goes inland, the cost of obtaining traditional foods, especially seafoods, may be prohibitive and, as a consequence, food patterns will be altered to foods available. "A number of taboos prohibit certain food combinations, or the use of certain foods in specific localities or at specific times. Some of these taboos are associated with religious practices such as ancestor veneration." (William, p. 272)

In areas where no city is far from the ocean, the main protein source is seafood. Many varieties of seafood and shellfish are served. Families living inland may also eat duck, pork, chicken and occasionally beef and lamb. Many vegetables are included, usually steamed and served with soy sauce. Rice is the staple grain, while some corn, barley and oats are also served. Little milk or cheese are used. Asian culture patterns carried over to the present generation continue to limit the use of dairy products. (Yamamoto, 1976)

"A specific sequence of courses is followed at most meals. A dinner is served in this order: green tea, unsweetened; some appetizer such as soy or red bean cake, a raw fish (sashimi) or radish relish (komono); broiled fish or omelet; vegetables with soy sauce; plain steamed rice; herb relish; fruits in season; a broth base soup (shirumise), and perhaps more unsweetened green tea. Typical dishes include tempura (batter fried shrimp) and aborakge (fried soybean curd). Sukiyaki is as American as chow mein. Soybean oil is the main cooking fat." (Williams, p. 273)

### Native American: Navajo - Pueblo - Sioux

Of all the food cultures that have melted into our cooking pot, none can claim more native flavor than that of the American Indian. The food that sustained these people for centuries has also become an integral part of many other Americans' diets. Due to geography, Indian food patterns may vary from one region to another.

#### Navajo - Pueblo: Southwestern United States

As one would expect, corn leads the list of mainstay foods, followed by beans, squash and chili peppers. The importance of corn to the Indian cannot be overstated. In cooking, it is used fresh, dried, roasted and ground. Chicos are used in stew, usually cooked with some meat such as mutton or some other meat. Blue corn meal mixed as a broth may be served after meals to settle one's stomach. (Grimm, 1976) Lamb, kid goat and beef are meats most frequently eaten; all organ meats are prepared and eaten. Cheese is a favorite food, usually made from goat's milk.

The focal point of a traditional dinner is a variety of chilis, which are accompanied by several kinds of breads. Generally based on meat, corn, and/or beans, these chili mixtures are literally seasoned with hot chili peppers so they closely resemble their Mexican counterparts. "(Surprisingly, chili peppers are not native to the American Indian cuisine, but were acquired from Spanish invaders.)" (Eby, et al, p. 86) The breads and pies are traditionally cooked outdoors. Some are fried, resembling the sopaipilla, others are baked in thick-walled, beehive-shaped adobe ovens called hernos. Cedar kindlings are burned in the ovens about an hour or so until the desired baking temperature is reached. (Grimm)

### Sioux: North Dakota, South Dakota, Iowa and Nebraska

Historically, the main foods available to the Sioux Indian were corn, buffalo meat - a source of protein, and wild berries utilized when available. Dairy products were not utilized as no tame livestock was available. Breast milk was utilized as a source of protein to children, as weaning did not occur until age five. Today, some of the preferred foods for the Sioux are: meats, beef and pork, corn as the main grain staple, pinto beans and dried fruits. The main beverage is coffee, consumed by young and old. (Provost 1976)

### Black Food Patterns

Black people who have migrated from the South to the northern cities continue to enjoy at least some of the foods to which they have been accustomed, such as blackeyed peas, greens with pot liquor, chitterlings, biscuits and many others. On the other hand, black people who have lived in the North for several generations may prefer other northern dishes. Within a given ethnic group, one will also find individuals who differ widely in their food habits.

Meats preferred by the black are fried chicken and pork. No portion of a pig is wasted as pork is prepared a variety of ways. Ways in which pork may be prepared are: chitterlings, tripe, sweet bread, pig ears, pig feet and hog head cheese. Beef and pork heart is prepared and used as a luncheon meat. (Cook, 1976) Green vegetables such as turnip tops, collards and mustard greens are well-liked; they are likely to be cooked for a relatively long time with pork fat as a flavoring agent. The water in which vegetables are boiled (pot liquor) is often consumed, thus retaining some of the vitamins and minerals which would otherwise be lost. Corn is the grain of choice, although rice is widely used. Corn appears in such forms as hominy grits and corn bread. Chicory coffee is a preferred beverage of the Southern black.

"Soul food is a term often associated with foods eaten by blacks. The word soul is used in reference to other aspects of living such as 'soul singing'. It is used with food to connote dishes that give a sense of well-being, that are enjoyed, and that are associated with sentiments or feelings. Soul foods have vestiges of American Indian foods, such as hominy and mush. The poor white colonists, by bringing hogs into the country, contributed to the emphasis on pork. The blacks of Africa provided the foundation of soul, with seasoned sauces and gravies, okra, watermelon, and beans. It was a diet that not only reflected the above impacts, but an attempt to make the most of the discards of plantation owners. From the hog came foods such as chitterlings from the entrails; hog maws from the stomach lining; boiled pig's feet, tails, ears, and snout, sometimes made into scrapple; hog jowl; and neck bones." (Fleck, p. 265)

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## POST-TEST

True - False

1. \_\_\_\_ Food should be considered as a major dimension of total patient care.
2. \_\_\_\_ The meal oftentimes serves as an avenue for expressing friendship.
3. \_\_\_\_ During hospitalization, the patient may rebel against his situation and may demand food he knows is not available.
4. \_\_\_\_ Beef is the preferred meat of the Black.
5. \_\_\_\_ Corn is the common grain staple of the Native American.
6. \_\_\_\_ Pinto beans have little in nutritional value.
7. \_\_\_\_ Soy sauce has a high sodium content.
8. \_\_\_\_ Sukiyaki is traditional Chinese food.
9. \_\_\_\_ In comparing the Chinese and Japanese diet, the Japanese diet contains more seafood.
10. \_\_\_\_ According to M. Clark, The Chicano believes that good health is influenced by proper diet, tracing many diseases to imbalanced intake of "hot" and "cold" foods.



POST-TEST ANSWERS

1. T
2. T
3. T
4. F
5. T
6. F
7. T
8. F
9. T
10. T

## SELECTED DIETS

Analyze according to the Basic Four:

### Breakfast:

Grits -  $\frac{1}{2}$  cup  
Egg - 1  
Crisp bacon - 1 slice  
Milk - 1 glass

### Lunch:

Kidney beans with onions and  
pepper -  $\frac{1}{2}$  cup  
Collard greens with ham - 2 oz.  
Cornbread with margarine  
Peach - 1  
Coffee - 1 cup

### Dinner:

Fried chicken - 2 small pieces  
Tomatoes and okra -  $\frac{1}{2}$  cup  
Rice -  $\frac{1}{2}$  cup  
Turnips -  $\frac{1}{2}$  cup  
Biscuit - 1  
Coffee - 1 cup

### Breakfast:

1 egg with green chili  
Fried potatoes -  $\frac{1}{2}$  cup  
Tortilla - flour - 1  
1 slice goat cheese  
Coffee - 1 cup

### Lunch:

Refried beans -  $\frac{1}{2}$  cup  
(with green chili)  
Tortilla - 1  
Vegetable stew with meat  
Dried apricots - 2  
Coffee  
1 slice goat cheese

### Dinner:

Baked Mutton - 2 oz.  
(Posole) - hominy with red chili -  
 $\frac{1}{2}$  cup  
1 apple  
Green salad with avocado slice  
Coffee

APPENDIX: A

EXCHANGE LIST FOR MEXICAN - AMERICAN PATIENTS

| <u>Item</u>                                                           | <u>Constituents</u>                                          | <u>Exchanges</u>                 |
|-----------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------|
| 1. Arroz con Carne<br>(327 Calories)                                  | 1 cup rice<br>2 oz. meat<br>1 tsp. fat                       | 2 bread<br>2 meat<br>1 fat       |
| 2. Fideo con Carne<br>(327 Calories)                                  | 1 cup vermicelli, cooked<br>2 oz. meat, cooked<br>1 tsp. fat | 2 bread<br>2 meat<br>1 fat       |
| 3. Papas con Carne<br>(327 Calories)                                  | 1 cup potatoes<br>2 oz. meat<br>1 tsp. fat                   | 2 bread<br>2 meat<br>1 fat       |
| 4. Chicharo con Carne<br>(303 Calories)                               | 1 cup peas<br>2 oz. meat<br>1 tsp. fat                       | 2 B-vegetable<br>2 meat<br>1 fat |
| 5. Frijoles con Jamon Salado<br>(226 Calories)                        | 1 cup beans<br>Salt Pork                                     | 2 bread<br>2 fat                 |
| 6. Tortillas de Harina<br>(5" diameter; 1/8" thick)<br>(136 Calories) | 2 tortillas                                                  | 2 bread<br>2 fat                 |
| 7. Tortillas de Maiz<br>(5" diameter; 1/8" thick)<br>(136 Calories)   | 2 tortillas                                                  | 2 bread<br>2 fat                 |
| 8. Enchiladas<br>(140 Calories)                                       | 2 enchiladas                                                 | 2 bread<br>2 meat                |
| 9. Tamales<br>(140 Calories)                                          | 1 tamale                                                     | 1 bread<br>1 meat<br>1 fat       |

# APPENDIX: A (continued)

| <u>Item</u>                                            | <u>Constituents</u>                                                               | <u>Exchanges</u>                                    |
|--------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|
| SAN ANTONIO RECIPES                                    |                                                                                   |                                                     |
| 10. Chile Relleno<br>(250 Calories)                    | 1 green pepper<br>2 oz. meat<br>1 tbs. onion<br>2 tsp. tomato sauce<br>½ cup rice | 1 A-vegetable<br>2 meat<br>1 B-vegetable<br>1 bread |
| 11. Picadillo<br>(277 Calories)                        | ½ onion<br>garlic<br>2 oz. ground meat<br>½ cup cooked potatoes<br>2 tsp. fat     | ½ B-vegetable<br>2 meat<br>1 bread<br>2 fat         |
| 12. Huevos con Papas Fritas<br>(204 Calories)          | ½ cup potatoes, cooked<br>½ small onion<br>1 egg<br>1 tsp. margarine              | 1 bread<br>½ B-vegetable<br>1 meat<br>1 fat         |
| 13. Tortillas with re-fried<br>beans<br>(147 Calories) | 1 flour tortilla<br>½ cup refried beans                                           | 1 bread 1 fat<br>½ bread                            |
| 14. Refried Beans<br>(176 Calories)                    | ½ cup beans, cooked<br>2 tsp. fat                                                 | 1 bread<br>2 fat<br>½ B-vegetable                   |
| 15. Fried Vermicelli<br>(289 Calories)                 | 1 cup, cooked<br>1 tbs. margarine<br>onion<br>green pepper                        | 2 bread<br>2 fat<br>½ B-vegetable<br>A-vegetable    |

(Rice may be substituted for Vermicelli in same measure)

|                                               |                                                     |                                  |
|-----------------------------------------------|-----------------------------------------------------|----------------------------------|
| 16. Flour tortilla (recipe)<br>(113 Calories) | 2½ tbs. flour<br>1 tsp. shortening                  | 1 bread<br>1 fat                 |
| 17. Fried Sweet potatoes<br>(113 Calories)    | ½ cup sweet potatoes<br>1 tsp. margarine            | 1 bread<br>1 fat                 |
| 18. Nopolitos<br>(154 Calories)               | ½ cup cactus<br>1 tsp. onion<br>1 egg<br>1 tsp. fat | 1 B-vegetable<br>1 meat<br>1 fat |

APPENDIX: A (continued)

| <u>Item</u>                                              | <u>Constituents</u>                                                             | <u>Exchanges</u>                                             |
|----------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------|
| 19. Avocado with Chili<br>(45 Calories)                  | 1/8 avocado<br>Pinch chili powder                                               | 1 fat<br>free                                                |
| 20. Pork chops<br>(277 Calories)                         | 1 med. pork chop<br>1/2 onion<br>1/2 cup tomatoes<br>1/2 cup potatoes           | 2 meat<br>1/2 B-vegetable<br>A-vegetable<br>1 bread<br>1 fat |
| 21. Asadura (liver)<br>(272 Calories)                    | 2 oz. liver<br>1/2 cup tomatoes<br>1 tsp. onion<br>2 tsp. fat                   | 2 meat<br>1 B-vegetable<br><br>2 fat                         |
| 22. Fried Tripe<br>(191 Calories)                        | 2 oz. cooked (1/2 cup)<br>1 tsp. fat                                            | 2 meat<br>1 fat                                              |
| 23. Fried Intestines<br>(281 Calories)                   | 3 oz. cooked (1/2 cup)<br>(1/2 cup)                                             | 2 meat<br>3 fat                                              |
| 24. Chorizos<br>(456 Calories)                           | 1 Chorizo<br>(2 pork sausage link)<br>1 egg<br>1 corn tortilla<br>1/2 cup beans | 2 meat<br>3 fat<br>1 meat<br>1/2 bread<br>1 bread            |
| 25. Fried Chicken<br>(236 Calories)                      | 2 oz. chicken<br>2 tbs. tomatoes<br>2 tsp. onion<br>2 tsp. fat                  | 2 meat<br>A-vegetable<br><br>2 fat                           |
| 26. Sauce for fried eggs<br>(45 Calories)                | 1 tbs. tomatoes<br>1 tsp. onion<br>1 tsp. fat                                   | A-vegetable<br><br>1 fat                                     |
| 27. Green Mexican Tomato<br>(25 Calories)                | 2 tbs. tomatoes<br>1 tsp. fat<br>2 tsp. onion<br>garlic                         | Free food<br>(but fat must be<br>kept at a<br>minimum)       |
| 28. Rice boiled with milk<br>and sugar<br>(207 Calories) | 1/2 cup cooked rice<br>1/2 cup milk<br>1 tsp. sugar                             | 1 bread<br>1/2 milk<br>1/2 fruit                             |

(If artificial sweetener is used, fruit exchange can be omitted.)



APPENDIX: A (continued)

| <u>Item</u>                           | <u>Constituents</u>                                                                                           | <u>Exchanges</u>                                                                 |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 29. Atole de Harina<br>(156 Calories) | 4 tbs. flour<br>1½ tsp. sugar                                                                                 | 2 bread<br>½ fruit                                                               |
| 30. Calabaza<br>(295 Calories)        | 2 oz. pork<br>¾ cup calabaza<br>¾ cup onion<br>1/3 cup corn<br>¾ cup tomatoes<br>garlic<br>oregano<br>cominoe | 2 meat<br>1 B-vegetable<br><br>1 bread<br>A-vegetable<br>Free foods<br><br>1 fat |

Taken from the University of Texas Nursing School (System-Wide) N. 661 Community Health Nursing.

## APPENDIX: B

### USE DAILY:

#### Milk Group

- 3 or more glasses milk - children  
smaller glasses for some children under 8
- 4 or more glasses - teenagers
- 2 or more glasses - adults

Cheese, ice cream and other milk-made foods can supply part of the milk.

#### Meat Group

- 2 or more servings

Meats, fish, poultry, eggs, or cheese - with dry beans, peas, nuts as alternates.

#### Vegetables and Fruits

- 4 or more servings

Include dark green or yellow vegetables; citrus fruit or tomatoes.

#### Breads and Cereals

- 4 or more servings

Enriched or whole grain. Added milk improves nutritional values.

Taken from National Dairy Council

## TERMINOLOGY



The following is a list of terms and their definitions. These are the terms you should recognize and understand for the successful completion of Unit 5 of the Health Occupations Program. Directions for studying and using them are given in the modules of the unit.

ABSORPTION:

Process whereby the usable form of food, having completed the chemical phase, enters into the bloodstream.

ANTIVITAMINS:

Substances that prevent normal use of a vitamin.

AVITAMINOSIS:

Without vitamins or vitamin deficiency, may be due to dietary lack of a problem in absorption.

CALORIE:

A measure of heat and a unit of food energy.

CARBOHYDRATES:

Nutrient made up of sugars. It gives quick energy to the body.

CHEILOSIOS:

Deficiency disease due to lack of Vitamin B<sub>2</sub> - Riboflavin.

CHOLESTEROL:

A fat-like substance that is present in many animal foods and that the body can also synthesize, was shown to be a major constituent of the other sclerotic plaques that form on the inside of some blood vessels.

COMPOUND:

The end result after two or more elements get together. (They have fixed ratios.)

DIABETIC FOOD EXCHANGE:

Groups foods into 5 groups. The allotted portion of each food in the group has the same calorie, carbohydrate, protein, and fat content as all other foods in the same group. It provides variety and flexibility for the diet of the diabetic.

DIGESTION:

Process that gets food into an absorbable form. It has a mechanical and chemical phase.

ELEMENT:

The smallest amount of any substance which has its own unique qualities. Oxygen and carbon are examples.

ENZYME:

A protein substance that does a specific job while still retaining its original qualities.

**TERMINOLOGY - concluded****EXCRETION:**

Process whereby the body rids itself of wastes - perspiration, urine, and stools are examples.

**FATS:**

Nutrient made up of fatty acids and glycerol. It provides concentrated energy to the body.

**HYPERVITAMINOSIS:**

An excessive amount of vitamins taken in may cause toxic symptoms.

**LIPOPROTEINEMIA:**

Condition where triglycerides or complex fats are found in excess in the bloodstream.

**MINERALS:**

Nutrient composed of inorganic compounds present in foods. They regulate body processes and comprise 4% of the body weight.

**NUTRITION:**

The study of foods.

**NUTRIENTS:**

Chemical substances needed by the body and provided to it by the food it receives.

**PELLAGRA:**

Deficiency disease due to lack of Vitamin B<sub>3</sub> - Niacin.

**PHOTOSYNTHESIS:**

Complex process where sun energy via plant's chlorophyll converts into carbohydrates.

**PROTOPLASM:**

Basic structure of ALL cells.

**PROTEIN:**

Nutrient made up of amino acids. It builds and repairs body tissues.

**SECRETION:**

Process by which the body pours out useful substances - hormones and enzymes are examples.

**SCURVY:**

Deficiency disease due to lack of Vitamin C.

**SYMBOL:**

Letter abbreviation for an element. Examples are: O = Oxygen, H = Hydrogen.

**RICKETS:**

Deficiency disease due to lack of Vitamin D.

**VITAMINS:**

Nutrients composed of organic compounds. In the diet, they help to regulate metabolism.

**WATER:**

Nutrient that comprises 60-75% of the total body weight. It is located INTRACELLULARLY and EXTRACELLULARLY.

**POST TEST**

**Module A**



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. **DO NOT WRITE ON THIS TEST.**

1. Nutrition is best defined as the study of:
  - a. anabolism
  - b. catabolism
  - c. metabolism
  - d. food
2. One of the three jobs done by food is:
  - a. digestion of food by body tissues
  - b. absorption of food by the body tissues
  - c. assimilation of food by body tissues
  - d. anabolism of food for building and repairing tissues
3. A second job done by foods is:
  - a. making energy and providing body heat by anabolism
  - b. making energy and providing body heat by catabolism
  - c. providing body heat by mitosis
  - d. making energy by means of the sun
4. A third job done by food is:
  - a. digestion of food by body tissues
  - b. regulation of body processes by providing the proper nutrients
  - c. absorption of protoplasm
  - d. secretion of hormones and enzymes
5. Chemical substances needed by the body are called:
  - a. elements
  - b. compounds
  - c. nutrients
  - d. symbols
6. The process whereby food is changed into an absorbable form is:
  - a. nutrition
  - b. digestion
  - c. secretion
  - d. absorption



## POST TEST - continued

7. The process whereby food in a usable form enters the bloodstream is:
  - a. nutrition
  - b. digestion
  - c. absorption
  - d. secretion
8. The process whereby the body pours out useful substances is:
  - a. nutrition
  - b. digestion
  - c. absorption
  - d. secretion
9. The process whereby the body rids itself of water such as urine and perspiration is:
  - a. secretion
  - b. excretion
  - c. absorption
  - d. digestion
10. Metabolism is the word that describes:
  - a. digestion of food by the body cells
  - b. assimilation of food by the body cells
  - c. all the processes done by the body cells
  - d. building up of tissue in the body
11. The basic material of all cells is:
  - a. cytoplasm
  - b. protoplasm
  - c. anabolism
  - d. catabolism
12. Diet therapy provides treatment through the prescription of:
  - a. medication
  - b. specific diets
  - c. liquid diets only
  - d. none are correct
13. Food habits are characteristic attitudes and actions concerning food and are influenced by:
  - a. food likes and dislikes
  - b. religion and nationality
  - c. availability of food and social environment
  - d. all are correct

**POST TEST - concluded**

14. The term which defines how the sun's energy, water, and carbon dioxide combine with chlorophyll in plants to make carbohydrates is:
- a. compound
  - b. element
  - c. photosynthesis
  - d. glycogenesis
15. Food fads include:
- a. hamburgers
  - b. yogurt and vegetarian foods
  - c. fast food restaurants
  - d. all are correct

**ANSWERS TO POST TEST**

**Module A**

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1. d
2. d
3. b
4. b
5. c
6. b
7. c
8. d
9. b
10. c
11. b
12. b
13. d
14. c
15. d

## POST TEST

### Module B



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The categorizing of foods into groups which are the basis for a good diet is called:
  - a. the basic nutritional foods
  - b. the basic three food groups
  - c. the basic five food groups
  - d. the American basic five
2. Which foods are included in the milk group?
  - a. milk and eggs
  - b. milk and milk products
  - c. milk and meat
  - d. milk and vegetables
3. Which foods are included in the meat group?
  - a. meat and eggs
  - b. meat and milk products
  - c. meat and yogurt
  - d. meat and vegetables
4. Which foods are included in the fruits and vegetables group?
  - a. cheese and eggs
  - b. beans and fruits
  - c. nuts and vegetables
  - d. carrots and oranges
5. Which foods are included in the bread and cereal group?
  - a. meat and eggs
  - b. milk and toast
  - c. milk and cereal
  - d. toast and "Wheaties"
6. How many daily servings are suggested for adults in the meat group?
  - a. 1
  - b. 2
  - c. 3
  - d. 4

**POST TEST - concluded**

7. How many daily servings are suggested for adults in the bread and cereal group and in the fruit and vegetable group?
  - a. 1
  - b. 2
  - c. 3
  - d. 4
8. To satisfy the adult daily requirement for the milk group, how many glasses of milk are suggested?
  - a. 1
  - b. 2
  - c. 3
  - d. 4
9. Which foods are included in the fats, sweets, alcohol group?
  - a. margarine and butter
  - b. coke and seven-up
  - c. jelly and jam
  - d. all are correct
10. How many daily servings are suggested for adults in the fats, sweets, alcohol group?
  - a. 0
  - b. 1
  - c. 2
  - d. 3



**ANSWERS TO POST TEST**

**Module B**

---



1. c
2. b
3. a
4. d
5. d
6. b
7. d
8. b
9. d
10. a

## POST TEST

### Module C1



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The necessary elements needed by the body and which come from the food we eat are called:
  - a. nutrients
  - b. elements
  - c. compounds
  - d. symbols
2. The six basic nutrients can be identified as:
  - a. oxygen, carbon, nitrogen, carbohydrates, protoplasm, and foods
  - b. oxygen, carbon, carbon dioxide, fats, minerals, and hormones
  - c. proteins, fats, carbohydrates, water, vitamins, and minerals
  - d. proteins, fats, carbohydrates, water, vitamins, and hormones
3. Which nutrient has the job of providing quick energy:
  - a. protein
  - b. fat
  - c. carbohydrate
  - d. vitamin
4. Which nutrient stimulates the Islands of Langerhans of the pancreas to make insulin?
  - a. protein
  - b. fat
  - c. carbohydrate
  - d. vitamin
5. Which class of carbohydrates is also called single unit sugars?
  - a. monosaccharides
  - b. polysaccharides
  - c. glycogen
  - d. disaccharides
6. An example of a single unit sugar is:
  - a. sucrose
  - b. glycogen
  - c. glucose
  - d. maltose

## POST TEST - continued

7. Which foods are the best source of carbohydrates?
  - a. meats and milk
  - b. sugars and fruits
  - c. fruits and butter
  - d. fat and cream
8. Too much carbohydrate in the diet can cause:
  - a. kwashiorkor
  - b. overweight
  - c. underweight
  - d. retardation
9. Too little carbohydrate in the diet can cause:
  - a. kwashiorkor
  - b. overweight
  - c. underweight
  - d. retardation
10. An example of a double sugar is:
  - a. sucrose
  - b. glucose
  - c. glycogen
  - d. fructose
11. An example of a polysaccharide or many sugars is:
  - a. sucrose
  - b. glucose
  - c. glycogen
  - d. fructose
12. Which nutrient is made up of amino acids and its main job is to build and repair tissue?
  - a. protein
  - b. carbohydrate
  - c. fat
  - d. vitamin
13. Which nutrient comprises the "building blocks" of every cell and gives four calories of energy for each one gram burned?
  - a. fat
  - b. mineral
  - c. protein
  - d. water

## POST TEST - continued

14. Which class contains all of the essential amino acids which are needed to grow and to keep body weight stable?
  - a. incomplete proteins
  - b. complete proteins
  - c. monosaccharides
  - d. disaccharides
15. Examples of complete proteins are:
  - a. gelatin and legumes
  - b. nuts and cereal
  - c. meat and milk
  - d. fruits and vegetables
16. Examples of incomplete proteins are:
  - a. gelatin and legumes
  - b. steak and candy
  - c. meat and milk
  - d. cereals and vegetables
17. Which condition denotes a protein deficiency in children?
  - a. overweight
  - b. underweight
  - c. kwashiorkor
  - d. retardation
18. Which nutrient is a concentrated source of heat and energy?
  - a. protein
  - b. fat
  - c. vitamin
  - d. mineral
19. Which nutrient gives nine calories per gram burned?
  - a. fat
  - b. protein
  - c. carbohydrates
  - d. vitamin
20. When the fatty acids are solid at room temperature they are called:
  - a. saturated fats
  - b. polyunsaturated fats
  - c. monounsaturated fats
  - d. unsaturated fats

**POST TEST - concluded**

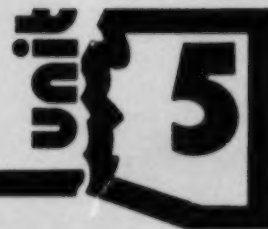
21. Fatty acids which are soft or liquid at room temperature are called:
- a. saturated fats
  - b. unsaturated fats
  - c. liquid proteins
  - d. incomplete proteins
22. Fatty acids that help lower blood cholesterol levels are:
- a. hydrogenated fats
  - b. saturated fats
  - c. disaccharide fats
  - d. polyunsaturated fats
23. Cholesterol is:
- a. found in all body cells and fluids
  - b. produced by the liver
  - c. a necessary part of brain tissue
  - d. all are correct
24. Which foods are the best sources of fats:
- a. meats and milk
  - b. sugars and starches
  - c. butter and cream
  - d. fruits and vegetables
25. A condition which results from too many lipids in the blood is:
- a. hydrogenation
  - b. hyperlipoproteinemia
  - c. kwasiorkor
  - d. pernicious anemia



## ANSWERS TO POST TEST

### Module C1

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- |       |       |
|-------|-------|
| 1. a  | 16. a |
| 2. c  | 17. c |
| 3. c  | 18. b |
| 4. c  | 19. a |
| 5. a  | 20. a |
| 6. c  | 21. b |
| 7. b  | 22. d |
| 8. b  | 23. d |
| 9. c  | 24. c |
| 10. a | 25. b |
| 11. c |       |
| 12. a |       |
| 13. c |       |
| 14. b |       |
| 15. c |       |

**POST TEST**

**Module C2**



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. **DO NOT WRITE ON THIS TEST.**

1. Which nutrient makes up 60-75% of the body weight?
  - a. fat
  - b. vitamin
  - c. protein
  - d. water
2. Which nutrient carries other nutrients in solution, regulates body temperature, and carries body wastes?
  - a. mineral
  - b. vitamin
  - c. water
  - d. protein
3. Which food is the best source of water?
  - a. meat
  - b. butter
  - c. fruit
  - d. candy
4. A condition which can result from a lack of water is:
  - a. perspiration
  - b. edema
  - c. dehydration
  - d. diaphoresis
5. The term which best describes the retention of fluid in the tissue is:
  - a. perspiration
  - b. edema
  - c. dehydration
  - d. diaphoresis
6. Nutrients which maintain an acid base balance are:
  - a. proteins
  - b. vitamins
  - c. carbohydrates
  - d. minerals

**POST TEST - continued**

7. Nutrients which regulate vital life processes and comprise 4% of the body are:
  - a. proteins
  - b. water
  - c. minerals
  - d. vitamins
8. Iron is a mineral which is an essential component of hemoglobin. Good sources of iron are:
  - a. spinach and peas
  - b. fish and egg white
  - c. carrots, turnips and beets
  - d. egg white and cereals
9. A condition due to lack of iron is called:
  - a. polycythemia
  - b. anemia
  - c. leukemia
  - d. scurvy
10. Which is the mineral that is needed for blood clotting and whose best sources are milk and milk products?
  - a. iron
  - b. calcium
  - c. iodine
  - d. sodium
11. Which mineral works with calcium, prevents rickets, and whose best sources are milk and milk products?
  - a. phosphorus
  - b. iron
  - c. iodine
  - d. sodium
12. Which mineral is used by the thyroid gland and whose best food sources are iodized salts and seafoods?
  - a. phosphorus
  - b. calcium
  - c. iodine
  - d. iron

## POST TEST - continued

13. Which of these three are salts and are called electrolytes?
  - a. iron, calcium, and phosphorus
  - b. iron, iodine, and calcium
  - c. iron, iodine, and phosphorus
  - d. sodium, potassium, and chloride
14. Which vitamin is fat soluble and one job it performs is to assist in good vision?
  - a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
15. Liver, spinach, cantaloupe, and carrots are the best food sources for:
  - a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
16. Which deficiency condition occurs when "Vitamin A" is lacking?
  - a. beri-beri
  - b. night blindness
  - c. scurvy
  - d. rickets
17. Which vitamin is fat soluble, helps harden bones and teeth, and has been called the "Sunshine Vitamin"?
  - a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
18. Fortified milk, fish liver oil, and liver are the best food sources for:
  - a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
19. Which deficiency condition occurs when "Vitamin D" is lacking?
  - a. beri-beri
  - b. pruritis
  - c. scurvy
  - d. rickets

## POST TEST - continued

20. Which vitamin is fat soluble, and prevents the destruction of red blood cells, muscles and other tissues?
- a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
21. Which is a fat-soluble vitamin needed in the clotting of blood?
- a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
22. Which vitamin is lacking when hemorrhage can occur?
- a. Vitamin A
  - b. Vitamin D
  - c. Vitamin E
  - d. Vitamin K
23. Which foods are the best sources for "Vitamin K"?
- a. fish, milk, and cereal
  - b. vegetables, liver and eggs
  - c. carrots, lettuce, and turnips
  - d. chicken, cantaloupe, and apple
24. Which water-soluble vitamin is also known as thiamine and helps digestion?
- a. Vitamin B-1
  - b. Vitamin B-2
  - c. Vitamin B-6
  - d. Vitamin B-12
25. Which foods are best sources for thiamine?
- a. fish, enriched bread and cereal, and pork
  - b. liver, tomatoes, carrots, and lettuce
  - c. cantaloupe, carrots, lettuce, and apples
  - d. liver, tomatoes, apples, and carrots
26. Which foods are the best sources for Vitamin B-2?
- a. tomato, lettuce, and cabbage
  - b. liver, eggs and cheese
  - c. cantaloupe, carrots, and apples
  - d. carrots, lettuce, and corn



## POST TEST - continued

27. The properties of fat-soluble vitamins include:
- a. soluble in water, develop deficiency symptoms rapidly
  - b. excreted in urine if excess
  - c. daily dietary supplement
  - d. soluble in fats, develop symptoms slowly
28. The lack of which vitamin causes the deficiency condition pellagra?
- a. thiamine
  - b. riboflavin
  - c. niacin
  - d. pyridoxine
29. Which vitamin deficiency causes skin problems?
- a. thiamine
  - b. riboflavin
  - c. pyridoxine
  - d. niacin
30. Pyridoxine is also called:
- a. Vitamin B-1
  - b. Vitamin B-2
  - c. Vitamin B-6
  - d. Vitamin B-12
31. The properties of water soluble vitamins include:
- a. daily dietary supply needed, rapid deficiency symptoms develop
  - b. elements of carbon, hydrogen, and oxygen
  - c. storage of intake if in excess of daily need
  - d. excess not excreted in urine, nonsoluble in water
32. Which is the deficiency condition for Vitamin B-12?
- a. beri-beri
  - b. pellagra
  - c. dermatitis
  - d. pernicious anemia
33. Which vitamin is water soluble, is needed to make gums and teeth strong, and helps heal wounds and burns?
- a. Vitamin B-1
  - b. Vitamin B-2
  - c. Vitamin B-6
  - d. Vitamin C

**POST TEST - concluded**

34. The lack of which vitamin causes the deficiency condition scurvy?
- a. Vitamin B-1
  - b. Vitamin B-6
  - c. Vitamin C
  - d. Vitamin B-12
35. Which foods are the best sources for Vitamin C?
- a. meat, milk, and liver
  - b. oranges, grapefruits, and lemons
  - c. carrots, apples, and pears
  - d. pears, apples, and prunes

## ANSWERS TO POST TEST

### Module C2

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- |       |       |
|-------|-------|
| 1. d  | 19. d |
| 2. c  | 20. c |
| 3. c  | 21. d |
| 4. c  | 22. d |
| 5. b  | 23. b |
| 6. d  | 24. a |
| 7. c  | 25. a |
| 8. a  | 26. b |
| 9. b  | 27. d |
| 10. b | 28. c |
| 11. a | 29. c |
| 12. c | 30. c |
| 13. d | 31. a |
| 14. a | 32. d |
| 15. a | 33. d |
| 16. b | 34. c |
| 17. b | 35. b |
| 18. b |       |

## POST TEST

### Module D



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. **DO NOT WRITE ON THIS TEST.**

1. A diet which requires no restriction upon food choice is:
  - a. liquid
  - b. soft
  - c. clear liquid
  - d. general
2. A diet that includes clear broth, tea, and 7-Up is:
  - a. full liquid
  - b. clear liquid
  - c. soft
  - d. mechanical soft
3. A diet that includes milk, fruit juices, and ice cream is:
  - a. full liquid
  - b. clear liquid
  - c. soft
  - d. mechanical soft
4. A diet in which salt is omitted from the meal tray is:
  - a. low cholesterol
  - b. low sodium
  - c. low protein
  - d. low calorie
5. A diet that includes foods that are high in calories is:
  - a. high cholesterol
  - b. high protein
  - c. high residue
  - d. high caloric
6. A diet which contains foods that are nonirritating to the gastrointestinal system is:
  - a. bland
  - b. high residue
  - c. regular
  - d. low caloric

**POST TEST - continued**

7. A diet which contains only very tender meats, vegetables, and fruits is:
  - a. low fat
  - b. soft
  - c. regular
  - d. liquid
8. A diet which is used by people who have no teeth or who have problems chewing is:
  - a. low cholesterol
  - b. low calorie
  - c. low residue
  - d. mechanical soft
9. A diet which limits the amount of butter, margarine, cream, and eggs is:
  - a. low residue
  - b. low protein
  - c. low cholesterol
  - d. low salt
10. A diet which includes milk formula, and liquid forms of meats and vegetables is:
  - a. tube feeding
  - b. high residue
  - c. high protein
  - d. high cholesterol
11. A diet required by a person who cannot secrete the hormone that carries glucose to the body cells is the:
  - a. cholesterol diet
  - b. sodium diet
  - c. diabetic diet
  - d. low protein diet
12. The specific purpose of the "Exchange Lists" is:
  - a. to see that the patient sticks to caloric intake
  - b. to provide necessary proteins and carbohydrates
  - c. to provide variety in the diet
  - d. none of the above
13. The diabetic diet is generally:
  - a. high protein, low carbohydrate, and low fat
  - b. high carbohydrate, low fat, and low protein
  - c. low fat, high carbohydrate, and high protein
  - d. low carbohydrate, low fat, and low protein



## POST TEST - continued

14. In prescribing a diabetic diet, the physician will consider:
  - a. present weight
  - b. severity of disease
  - c. age, physical activity, and medication
  - d. all are correct
15. The diabetic must remember to:
  - a. eat until he/she is full
  - b. eat between meals
  - c. skip breakfast every other day
  - d. eat only those foods on the diet
16. The patient who has been diagnosed as having a liver or gallbladder condition would have the following diet:
  - a. low caloric
  - b. low sodium
  - c. low fat
  - d. low residue
17. The low cholesterol diet is usually ordered for the patient with the following condition:
  - a. gastric ulcer
  - b. ulcerative colitis
  - c. artherosclerotic heart disease
  - d. liver and gallbladder disorders
18. A clear liquid diet may be given to the patient when:
  - a. he/she has no teeth
  - b. he/she returns from surgery
  - c. he/she is a diabetic
  - d. all are correct
19. Tube feeding is usually ordered for the individual who:
  - a. is unconscious or has had a gastrectomy
  - b. has just had surgery, previous to a soft diet
  - c. is unable to metabolize the body sugar
  - d. cannot eat a regular diet
20. A patient who has a disorder of the lower gastrointestinal tract such as ulcerative colitis is usually given a:
  - a. low cholesterol diet
  - b. low sodium diet
  - c. low residue diet
  - d. bland diet

**POST TEST - concluded**

21. A patient who has a gastric ulcer may have the following diet ordered:
  - a. low residue
  - b. low fat
  - c. bland
  - d. low fiber
22. The physician may order a low sodium diet when a patient has the following diagnosis:
  - a. cardiac disease
  - b. diabetes
  - c. obesity
  - d. colitis
23. A mechanical soft diet is ordered for:
  - a. the geriatric diabetic
  - b. the cardiac patient
  - c. the patient with liver/bladder disorders
  - d. the patient who does not have any teeth
24. A full liquid diet is ordered:
  - a. immediately after surgery
  - b. prior to a soft diet after surgery
  - c. in all burn cases
  - d. for a gastric ulcer
25. A low calorie diet is ordered for:
  - a. fractured jaw
  - b. dehydration
  - c. malnutrition
  - d. obesity

## ANSWERS TO POST TEST

### Module D

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- |       |       |
|-------|-------|
| 1. d  | 24. b |
| 2. b  | 25. d |
| 3. a  |       |
| 4. b  |       |
| 5. d  |       |
| 6. a  |       |
| 7. b  |       |
| 8. d  |       |
| 9. c  |       |
| 10. a |       |
| 11. c |       |
| 12. c |       |
| 13. a |       |
| 14. d |       |
| 15. d |       |
| 16. c |       |
| 17. c |       |
| 18. b |       |
| 19. a |       |
| 20. c |       |
| 21. c |       |
| 22. a |       |
| 23. d |       |

Unit 6 emphasizes the importance of cleanliness. Specific methods are studied to preserve medical and surgical asepsis. Bacterial names, diseases they cause, and the means by which bacteria are transmitted are examined.

## **ASEPSIS**

Module A - General Principles of Asepsis

Module B - Specific Methods of Maintaining Medical and Surgical Asepsis

Module C - Infectious Process and Transmission of Disease Terminology

Post Tests: 1. Module A  
2. Module B (Demonstration only)  
3. Module C

Answer Sheets

When you have completed the Learning Activities and are ready for a test, or wish to challenge a test, please see your instructor.

### ***Suggested References***

1. Programmed Instruction in Asepsis. Arlington, Texas: Arbroom, Inc., 1969.
2. Seedor, Marie M. Introduction to Asepsis. 2d rev. ed. Teachers College Press, Teachers College, Columbia University, 1970.
3. Trainex Corporation, Garden Grove, Calif. (audiovisual)

Isolation Technique

Sterile Technique and Dressing Change

Changing Sterile Dressings

## ASEPSIS

### Module A - General Principles of Asepsis



#### RATIONALE

Asepsis is the technique of preventing infections and removing germs. Some patients for whom you will be caring may have infections caused by germs. This module will explain this technique.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the three general principles of asepsis.
2. Identify eight terms related to the practice of asepsis.

#### LEARNING ACTIVITIES

**Directions:** All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

#### ACTIVITY #1. Principles of Asepsis

**Directions:** Read the following material and complete the exercises.

The first general principle of asepsis states:

1. Sterile surfaces may touch only sterile surfaces. Sterile means complete and total absence of all bacteria including both good and bad bacteria.

Normally, the skin provides a natural protection against germs or bacteria. During surgery this protection is broken and the patient has an added chance of contracting an infection.

As the nurse or doctor changes dressings in a health care facility, sterile supplies are handled so that only the untouched or the absolutely sterile dressing is applied to the incision site. This is to prevent any kind of germs, even harmless ones, from entering the wound.

The following questions pertain to the first principle of asepsis.



**LEARNING ACTIVITIES - continued**

**Directions:** Circle the correct word in the following statements. Answers can be found on page 5 of this module.

- A. Sterile surfaces touch only (sterile, non-sterile) surfaces.
- B. Sterile means a (complete, partial) absence of all bacteria.
- C. Some bacteria are good and some are bad. In a sterile field you find (some, none) of these bacteria?

**REMEMBER:** Sterile surfaces touch only sterile surfaces!!!!!!!

The second general principle of asepsis states:

- 2. Clean surfaces touch only clean surfaces.

Clean means to be free from dirt, contamination or disease. Nonetheless, clean surfaces do have normal bacteria on them. This explains the difference between clean surfaces and sterile surfaces. Sterile surfaces contain no bacteria on them. Clean supplies, although washed and presumed to be free of disease-causing germs, still contain normal germs.

Utility rooms in health care facilities are divided into two sides. One side, the clean side, contains all the supplies and equipment which have had no patient contact. These supplies are held on this side for delivery to the patient area. The second side, the dirty side, handles all supplies that have been used and are ready to be returned to central service for recleaning.

The following questions pertain to the second principle of asepsis.

**Directions:** Circle the correct answer to each of the following questions. Answers can be found on page 5 of this module.

- A. Clean means to be free from dirt and disease.

YES NO

- B. Clean surfaces have sterile surfaces.

YES NO

- C. Clean supplies have dirt and disease-causing germs on them.

YES NO

- D. The dirty side of the utility room can have clean supplies too.

YES NO

**REMEMBER:** Clean surfaces touch only clean surfaces!!!!!!!

**LEARNING ACTIVITIES - continued**

The third general principle of asepsis states:

3. Contaminated surfaces touch only contaminated surfaces.

Contaminated means germs and/or infection are present. In other words, a contaminated object or person has come into contact with bacteria. Contaminate is the opposite of sterile. Sterile dressings can be contaminated by the normal bacteria on supposedly clean hands.

**Directions:** Circle the correct response to the following statements. Answers can be found on page 5 of this module.

A. Contaminated surfaces touch only contaminated surfaces.

YES

NO

B. Contaminated is the same as sterile.

YES

NO

C. If a clean hand touches a sterile dressing, the dressing is still sterile.

YES

NO

**REMEMBER:** Contaminated surfaces touch only contaminated surfaces!!!!!!

**Directions:** The following statements relate to all three principles of asepsis. Fill in the blanks correctly. Answers can be found on page 5 of this module.

A. Sterile surfaces touch only \_\_\_\_\_ surfaces.

B. Clean surfaces touch only \_\_\_\_\_ surfaces.

C. Contaminated surfaces touch only \_\_\_\_\_ surfaces.

**ACTIVITY #2. Terminology**

**Directions:** Read the following material and complete the exercise. The eight terms related to the practice of asepsis are as follows:

1. Antisepsis - Antisepsis is the process of using a chemical agent, such as alcohol, on the skin to stop the growth of or kill bacteria. Stopping the growth of bacteria is called Bacteriostasis. Killing bacteria is called Bactericide.
2. Disinfection - Disinfection is the process of stopping bacterial growth by using a chemical agent, such as staphene, on floors and equipment. It may or may not kill the bacteria.
3. Concurrent Disinfection - Concurrent disinfection is the process of using chemical agents to disinfect materials while a disease is still in progress. Examples are using Cidex soak for IPPB equipment or Microbac for beds and tables.

**LEARNING ACTIVITIES - concluded**

4. Terminal Disinfection - Terminal disinfection is the process of using chemical agents to disinfect the environment after a disease has run its course. For example, scrubbing walls and floors with disinfectant or sterilizing equipment.
5. Chemical Agent - A chemical agent is a chemical compound used in the correct solution strength to either kill bacteria (Bactericide) or stop bacterial growth (Bacteriostasis). Two examples of chemical agents are Detergicide and Cidex.
6. Physical Agent - A physical agent is a nonchemical agent that affects the growth of or kills bacteria. Sunlight, heat, temperature, moisture and pressure are examples of physical agents.
7. Sterilization - Sterilization is the process of destroying all bacteria.  
 Example: Hot sterilization is a process whereby supplies are washed and wrapped and put into an oven-like machine called an autoclave and subjected to intense heat for a specified period of time (250 degrees for 20 minutes).  
 Example: Cold sterilization is a process whereby very delicate instruments, capable of falling apart in heat, are washed and put into a container of germicide of correct strength for a specified length of time.  
 Example: Gas sterilization is a process whereby Ethylene Gas is used on equipment that cannot be steamed, such as plastic, at 140 degrees for one hour.
8. Autoclave - An autoclave is an oven-like machine used for sterilization by steam pressure, usually at 250 degrees, for a specified length of time.

**Directions:** Match the following terms in the right-hand column with their correct definitions in the left-hand column. Check your answers with the information you have read in this module.

- |                                                                       |                            |
|-----------------------------------------------------------------------|----------------------------|
| _____ 1. Process used on floors.                                      | A. Antisepsis              |
| _____ 2. Used while disease is still in progress.                     | B. Disinfection            |
| _____ 3. Process whereby all bacteria are destroyed.                  | C. Concurrent disinfection |
| _____ 4. Sunlight, heat, pressure, moisture                           | D. Terminal disinfection   |
| _____ 5. In solution that is bacteriostatic and may be bacteriocidal. | E. Chemical agent          |
| _____ 6. Oven-like machine that sterilizes.                           | F. Physical agent          |
| _____ 7. Done after disease has run its course.                       | G. Sterilization           |
| _____ 8. Process used on skin.                                        | H. Autoclave               |

**ANSWERS****ACTIVITY #1****First principle of asepsis**

- A. sterile
- B. complete
- C. none

**Second principle of asepsis**

- A. YES
- B. NO
- C. NO
- D. NO

**Third principle of asepsis**

- A. YES
- B. NO
- C. NO

- A. sterile
- B. clean
- C. contaminated



## ASEPSIS

### Module B - Scientific Methods of Maintaining Medical and Surgical Asepsis



#### RATIONALE

As a health worker, you will take care of patients who have communicable diseases. Before you can do this safely, you will need to acquire some skills in medical and surgical asepsis. This module will explain the necessary skills.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Demonstrate the following methods of practicing medical asepsis:
  - A. Handwashing:      General - for all nursing care  
                              Specific - in isolation or protective care
  - B. Isolation:            Putting on gown for isolation  
                              Gowning out of isolation  
                              Double bagging out of isolation  
                              Reverse isolation
2. Demonstrate the following methods of practicing surgical asepsis:
  - A. Putting on sterile gloves
  - B. Opening sterile supplies
  - C. Changing sterile dressings

#### LEARNING ACTIVITIES

**Directions:** All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

#### ACTIVITY #1. Medical Asepsis

**Directions:** Read the following material and complete the exercises.

The definition for medical asepsis states:

Medical asepsis is a method used to prevent the spread of communicable disease. This means that a person with a communicable disease and his/her immediate surrounding is confined to a limited area.



**LEARNING ACTIVITIES - continued**

Try to write your own understanding of this definition.

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Now, fill in the blanks to give the definition of medical asepsis stated above.

Medical asepsis is defined as a \_\_\_\_\_ used to prevent the spread of a \_\_\_\_\_ disease.

**Handwashing****Steps in Handwashing**

**Directions:** Read the following material and complete the exercise.

Handwashing is a way of maintaining Medical Asepsis. Form a habit of washing your hands before and after caring for each patient and after performing such tasks as handling soiled dressings, bedpans, etc. The steps you are about to read apply to handwashing, generally. An asterisk (\*) before a step denotes special precautions to take when caring for patients in ISOLATION or PROTECTIVE CARE.

| <u>Steps in Handwashing</u>                                                                                  | <u>Key Points</u>                                                                            |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1. Turn on water, adjusting temperature. Leave water running throughout the entire procedure.                | 1. Do not touch the sink or faucets once you start, as they are considered very dirty.       |
| 2. Wet your hands and wrists under running water.                                                            | 2. Wet promotes lather.                                                                      |
| 3. Apply soap or detergent and rub all over hands for one full minute. Be sure to include under fingernails. | 3. Handwashing is the <u>BEST</u> way to prevent cross-infection. Rubbing promotes friction. |
| 4. Rinse carefully with hands held lower than the arms.                                                      | 4. Keep fingertips down so bacteria will run off the fingertips into the sink.               |
| 5. Dry each wrist and hand with a different paper towel. Dry from wrist towards the fingertips.              | 5. Work from clean area (the wrist) to dirty area (the fingertips).                          |

**LEARNING ACTIVITIES - continued**

- \*6. Turn off each faucet handle with a different paper towel and discard it.
- 6. Avoid contaminating the faucet handles for the next person washing their hands.
- \*7. Wash hands again after you leave the isolation area.
- 7. Take extra precaution not to carry any germs to your next patient.

**NOTE:** \*These steps are done in isolation or protective care situations only.

**ILLUSTRATION ON HANDWASHING**

Hands are kept lower than arms because arms are not soiled; the hands are. Water flows downhill; therefore, the inside of the sink is considered contaminated.

Go over any questions with your instructor. Reread the material if necessary. Then, go to a sink and practice the Steps in Handwashing. After you have practiced washing, demonstrate each step to your instructor. Be prepared also to answer questions about the key points.

**Isolation****General Information**

**Directions:** Read the following information on isolation. It will provide an overview and background on the topic.

Isolation or Protective Care is a way of practicing Medical Asepsis by using special precautions in caring for people with communicable, infectious, or "catchy" diseases.

Some "catchy" diseases, such as the common cold, are not serious enough to require putting a person in an Isolation Unit. Communicable diseases which are dangerous to other humans, such as tuberculosis, require that the patient be placed in isolation.

## LEARNING ACTIVITIES - continued

Isolation is the means used to restrict contamination from a communicable disease. Communicable diseases may be spread by direct or indirect contact with other patients, personnel and visitors.

### Helpful Hints for Isolation or Protective Care

Before entering the isolation unit, always gather all of the linen and equipment that you will need.

When you have given the patient complete care and are ready to begin ungowning, always ask the patient if there is anything else he or she needs. BE ORGANIZED!!! Make sure that everything is complete before you leave the unit.

### How Diseases are Transmitted

Direct Contact - implies that the contamination is passed on directly by the sick person to another person.

For example: In a person-to-person disease such as tuberculosis, Person "X" has T.B. and sneezes. Person "Y" is in line of fire as "X" sneezes. Later, "Y" comes down with the same disease, tuberculosis.

Veneral disease is passed directly by sexual intercourse.

Indirect Contact - implies that the contamination is passed on via a healthy person who uses an object that has been contaminated by the infected person.

For example: Person "X" has hepatitis. "X" drinks from a glass of soda. Person "Y" comes in and drinks from the same glass and later comes down with hepatitis.

### How to Avoid Contamination by Direct and Indirect Contact

1. **USE OF MASK IN ISOLATION** - The mask is used in caring for patients with respiratory or breathing diseases. It helps to protect you from germs coughed or sneezed into the air. This mask must be changed once it becomes moist. Hands must be washed before removing the mask.
2. **USE OF GLOVES IN ISOLATION** - Gloves are worn when changing dressings or handling contaminated excretions or secretions (such as hepatitis contaminated feces). Do not let stools or urine splash when being emptied. The gloves will protect you from getting infectious germs on open cuts on your skin and from passing these germs on to another person.
3. **ARTICLES USED IN ISOLATION AREA** - Articles used in isolation are disposable. If nondisposables are used, they must be washed, disinfected, and double bagged BEFORE LEAVING THE PATIENT'S AREA. They must then be sterilized before they can be washed and recycled for general use. Double bagging refers to the procedure of putting all nondisposable supplies into one bag inside the isolation room and then putting them into another clean bag that is sitting outside the isolation room. In this way, any person handling the bag outside of

**LEARNING ACTIVITIES - continued**

the room will only touch a clean surface. Double bagging is explained in greater detail later in this module.

View the filmstrip and listen to the record, Isolation Technique by Trainex, (if it is available).

**Gowning for Isolation**

**Directions:** Read the following information paying close attention to each step and to the key points. If you feel it is necessary, ask your instructor to demonstrate the procedure for you as you read the material.

**Steps in Putting on Gown for Isolation****Key Points**

- |                                                         |                                                                                                                                                                             |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Take off watch and rings.                            | 1. Watches and rings are usually not worn in isolation as they can be sources of cross infection.                                                                           |
| 2. Get clean gown.                                      | 2. Gown is worn to protect your clothing when in direct contact with a patient and/or to protect patient from you. Example: Turning the patient before giving an injection. |
| 3. Put gown on with the opening to your back.           |                                                                                                                                                                             |
| 4. Tie neck strings.                                    |                                                                                                                                                                             |
| 5. Tie waist strings.                                   |                                                                                                                                                                             |
| 6. Check to be sure your uniform is completely covered! | 6. Gown is worn to protect you!!                                                                                                                                            |

If any of the above material is unclear, check with your instructor.

Do you remember the main steps? The key points? Now, demonstrate gowning (step by step) for your instructor. Practice again if necessary.



## LEARNING ACTIVITIES - continued

### Gowning Out of Isolation

**Directions:** Read the following information paying close attention to each step and to the key points. If you feel it is necessary, ask your instructor to demonstrate the procedure as you read the material.

#### Steps for Gowning Out of Isolation

1. Untie waist strings.
2. Cross arms at wrist and work sleeves upward.
3. Wash your hands.
4. Untie neck strings.
5. Grasp neck string and pull downward.
6. Turn gown inside out.
7. Roll the gown in bundle shape.
8. Drop bundle into linen hamper.
9. Wash hands before leaving room.

#### Key Points

1. Waist strings are considered the dirtiest part of the gown.  
REMEMBER: "Dirty things can touch dirty things."
2. Keep sleeves from getting wet.
3. Keep fingertips down.
4. Hands have now been washed and are considered clean, but you are still in a dirty area. Neck strings are the cleanest part of the gown.
5. Gown will slide down and off.
6. Be careful that the dirty outside of the gown does not touch you or your clothes.
7. Keep at arms length.

Go over all of the above material carefully. When you are ready, demonstrate gowning out for your instructor. If you have mastered all of the steps, you are ready to move on!!





## LEARNING ACTIVITIES - continued

### Double Bagging Out of Isolation

**Directions:** Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

#### Double Bagging Out of Isolation

1. Get another person to help you.
2. Get two bags and one gown and find an isolated or contaminated area.
3. Clean person goes outside of the isolated or contaminated area.
4. Dirty person wearing gown stays inside of the isolated area.
5. Clean person holds large bag open with hands hidden and protected inside of a 6" or 8" wide cuff (made by folding the edges of the bag back).
6. Dirty person picks up dirty bag containing supplies or linen.
7. Move toward clean person.
8. Insert dirty bag inside the clean bag.
9. Clean person unrolls cuff and folds down the edges.
10. Get ISOLATION label and put on the outside of the bag.
11. Place marked bag in properly designated area.

#### Key Points

1. One of you is designated the clean person. The other one is designated the dirty person.
2. You may use a "mock area". Outside a doorway is a clean area; inside is a contaminated area.
3. Stand outside the door at the threshold.
4. Stand inside of door.
5. Do not let hands touch the dirty supplies or the "dirty person" that is handling them.
8. Be careful to touch only the inside of the bag.
9. Be careful not to touch any part of the contents inside.

Practice each step carefully. Demonstrate the steps to your instructor as soon as you feel you are ready.

**LEARNING ACTIVITIES - continued****Reverse Isolation**

**Directions:** Read the following information and complete the exercise. After completing this activity, you will be asked to explain Reverse Isolation to your instructor.

In reverse isolation, you are protecting the patient from your bacteria. Therefore, you must wear a clean or sterile gown, gloves, and a mask each time you enter the room. If you have to leave the room, you must ungown, making sure that the dirty gown is not left inside the room.

Reverse isolation is very important for patients who have a greatly reduced resistance to disease. Taking chemotherapy for cancer treatment or diseases such as leukemia, reduce the body's ability to fight infections. Even a slight cold or infection for such patients may be life threatening.

Reverse isolation is also often required in caring for patients with burns.

**Directions:** Complete the following exercise. The answers can be found in the material you have read in Activity #1 of this module.

Can you name the three conditions that would require you to use Reverse Isolation? List them.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Now, make sure that you really understand the process by explaining reverse isolation to your instructor.

**ACTIVITY #2. Surgical Asepsis**

**Directions:** Read the following material and complete the exercise.

Surgical asepsis is defined as a method of using sterile equipment and sterile supplies when entering the sterile "interior" of the body.

Sterile is a word used to describe the condition of being absolutely free from any and all microorganisms. Sterile equipment and supplies have been made totally free from any and all microorganisms.

Microorganisms are sometimes called bacteria or germs. So, sterile means to be free of bacteria or germs.

**LEARNING ACTIVITIES - continued**

**Directions:** Complete the following exercise. If you make any mistakes, go over the material again.

Try to write your own understanding of the definition of sterile.

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Now, fill in the blanks for the definition of surgical asepsis. The answers can be found in the material you have studied in this module.

Surgical Asepsis is defined as a method of using \_\_\_\_\_ equipment and \_\_\_\_\_ supplies when entering the " \_\_\_\_\_ " interior or inside of the body.

If you made any mistakes, go over the material again.

**Putting On Sterile Gloves**

**Directions:** Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Sterile gloves are generally used when:

1. A patient has an incision
2. Patient care requires sterile procedures: for instance, catheterization, biopsy, or entering a sterile cavity of the body (e.g., the urinary bladder).

**REMEMBER:** There is no such thing as partly sterile. Gloves are either sterile or they are nonsterile.

An important procedure in surgical asepsis is putting on sterile gloves. View the Trainex film on Sterile Technique and Dressing Change which demonstrates the proper method for putting on sterile gloves.

Also, read carefully the following step-by-step description of the procedure for putting on sterile gloves.

**Steps for Putting on Sterile Gloves****Key Points**

- |                                                                                                                                                     |                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Wash and dry your hands.</li> <li>2. Place glove wrapper on table or work surface and open it.</li> </ol> | <ol style="list-style-type: none"> <li>2. Do <u>not</u> touch the inside of the wrapper. A sterile area (such as the inside of the wrapper) becomes contaminated when touched by unsterile objects (such as your bare hands).</li> </ol> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## LEARNING ACTIVITIES - continued

### Steps for Putting on Sterile Gloves

3. Pick up the first glove carefully by the folded edge of the cuff, and remove it from the wrapper.
4. Put on glove:
  - a. Hold glove by folded edge of cuff with thumb and first fingers. Position the other hand ready to receive glove.
  - b. Touching only the cuff, pull well over the wrist. (Keep hands out in front of you and away from the uniform.)
  - c. Leave the cuff of the glove as it is.
5. Remove second glove from wrapper. Slip the fingers of gloved hand under the cuff of the second glove, and pick it up off sterile field.
6. Still holding gloved fingers under cuff, pull glove on other hand. Do not allow gloved fingers to touch bare hand or wrist. Hold gloved hands thumbs up and away from wrists.
7. Make adjustments to fit fingers comfortably in glove fingers. Do not allow anything to touch your gloved hands.

### Key Points

3. Touch only the cuff of the glove. Do not touch any part of the paper. This is the sterile field.
4. b. Sterile objects that are out of sight may touch unsterile objects accidentally.
4. c. Do not be concerned if fingers do not fit properly in glove. Wait until second glove is on before adjusting the gloves and turning back the cuffs.
6. REMEMBER: Sterile surfaces can only touch sterile surfaces.

Ask your instructor any questions you may have about the procedure. Then, get a package of sterile gloves from your instructor, open the package, and practice the procedure. You will probably make mistakes at first. Just keep practicing.

When you feel you have mastered the procedure, demonstrate to your instructor the proper method for putting on sterile gloves. Also, be prepared to answer questions about the key points.



## LEARNING ACTIVITIES - continued

### Opening Sterile Supplies

**Directions:** Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

#### Steps to Opening Sterile Supplies

1. Get a sterile package from your instructor.
2. Place the package on the table with the top facing you.
3. Remove the label.
4. Grasp Tab 1 and pull out. Lay tab down away from you.
5. At this point, your package should look like an envelope that has the flap opened.
6. Grasp Tab 2 and 3, pulling to opposite sides.
7. Grasp the final Tab 4 and lay it flat.
8. Does your package look like an envelope that has come apart at the seams?
9. Practice the steps again.
10. A word to the wise. Many of the sterile supplies are prepackaged by machine and; therefore, all the edges are sealed except the one edge that is marked, "Tear Here".

This type of package is opened by grasping both edges at the "Tear Here Point" and pulling down. It is similar to holding a banana straight up and pulling the skin off each side at the same time. Do not touch the "banana"

#### Key Points

1. Sterile packages are dated, labeled, free from holes, and usually have double thickness for wrappers. A TORN PACKAGE IS NOT STERILE.
4. Touch outside of the wrapper only. REMEMBER: INSIDE IS STERILE.
5. SEE ILLUSTRATION





**LEARNING ACTIVITIES - continued**Steps to Opening Sterile SuppliesKey Points

itself - only the peel! As you get the entire "banana unpeeled", carefully hold one side of the skin up and let the "banana" gently down! NOT BAD!!

After you have practiced each step and feel that you can open sterile packages correctly, demonstrate the procedure to your instructor.

**Changing Sterile Dressings**

**Directions:** View the Trainex presentation on Changing Sterile Dressings. Then read the following information, paying attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Sterile dressings are used to protect an incision or a cut on the skin from contamination or infection. Since the skin is the natural protective covering or barrier for the body, any cut or incision is an invasion into this protection; therefore, all cuts and/or incisions are possible sites for infection.

It is, therefore, very important to change dressings correctly so as to keep the wound free from infection.

Fresh dressings are usually reinforced as needed.

Steps in Changing Sterile DressingsKey Points

- |                                                                                                           |                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Get all supplies that will be necessary.                                                               |                                                                                                                                             |
| 2. Take to "patient" area.                                                                                |                                                                                                                                             |
| 3. Wash your hands before going to the next step.                                                         |                                                                                                                                             |
| 4. Open sterile supplies using proper procedure.                                                          |                                                                                                                                             |
| 5. Remove soiled dressing and dispose of it in a paper or plastic bag already opened near your work area. | 5. Do so carefully and look for drains and any attached tubes.                                                                              |
| 6. Remove any drainage by using sterile forceps and antiseptic wipes.                                     | 6. Wipe from the incision <u>AWAY</u> to the outside and discard the antiseptic wipes into a paper or plastic bag. <u>NEVER VICE VERSA!</u> |

**LEARNING ACTIVITIES - concluded**Steps in Changing Sterile Dressings

7. Pick up sterile dressing from your opened pack using forceps.
8. Add enough dressings to cover entire incision.
9. Apply tape. Do not stretch the tape as tape can blister the skin.
10. Gather the used supplies.
11. Discard plastic bag with soiled dressings in specified container.
12. Wash hands.
13. Report or chart dressing change.

Key Points

7. Place gently and directly on incision site. NEVER TOUCH INCISION SITE WITH BARE HAND.

Ask your instructor any questions you may have about the procedure. Then get a package of sterile dressings from your instructor, open the package, and practice the procedure.

When you feel you have mastered the procedure, demonstrate to your instructor the proper method for changing sterile dressings. Also, be prepared to answer questions about the key points.

## **ASEPSIS**

### **Module C - Infectious Process and Transmission of Disease**



#### **RATIONALE**

As a health worker, you will need to understand how bacteria or microbes can be harmful or helpful to our bodies. If you understand the differences between different kinds of bacteria, you will be able to protect yourself and your patients effectively.

#### **PERFORMANCE OBJECTIVES**

To the instructor's satisfaction you will:

1. Identify the infectious process by:
  - a. Identifying the following terms: Pathogenic, Nonpathogenic, Normal Flora, Microbiology.
  - b. Identifying the major groups of microorganisms that cause disease.
  - c. Identifying the factors that determine the severity of an infection.
2. Identify Portals of Entry, Portals of Exit, and the four major routes of the spread of infection.
3. Identify methods used to identify microbes.

#### **LEARNING ACTIVITIES**

**Directions:** All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

#### **ACTIVITY #1. The Infectious Process**

**Directions:** Read the following material and complete the exercises.

The course of human history has been greatly affected by infectious diseases such as Small Pox, Measles, Influenza, Typhoid Fever, Plague, Dysentery and Cholera. Infectious diseases were a major cause of death in the United States early in the century. Ask your grandparents for the cause of death of their parents, aunts and uncles.

As a health worker, you need to understand how microorganisms or microbes can be helpful or harmful to our bodies. Infectious diseases persist. Infectious diseases can be prevented and can be cured!

## LEARNING ACTIVITIES - continued

### Terms

Microbiology is the study of a nearly invisible living world of microorganisms or microbes. This invisible-living world of microbes is so small it can only be studied under a microscope. These microbes are living cells and are called normal flora.

There are millions of microbes all around us and in us. Some of these microbes are capable of producing disease. These are called pathogenic microbes. The microbes that do not cause disease are called nonpathogenic microbes.

### Disease Producing Microbes

The majority of all human disease are produced by the following groups of microbes.

- |               |                       |
|---------------|-----------------------|
| 1. virus      | 4. fungus             |
| 2. rickettsia | 5. protozoa           |
| 3. bacteria   | 6. parasites or worms |

We will look at each of these microbes in more detail later in this module.

Research discovers new specific microbes every day. Remember the recent outbreak of Legionnaire's Disease? This type of pneumonia was caused by a new bacteria that was named for the disease.

### Factors of Infection

Whether an infection takes place and how severe that infection may be depends on the following three factors.

1. The virulence or strength of the infecting microbe and its ability to invade the body.
2. The number of microbes entering the body.
3. The body's ability to fight off the invading microbes. (This is called natural immunity.)

Natural immunity can be affected by many things such as poor diet, inadequate sleep, stress, age, other diseases, and the surrounding environment. All of these affect our ability to fight disease.

**Directions:** Fill in the blanks correctly. Answers can be found on page 6 of this module.

1. Microbiology is the study of \_\_\_\_\_  
\_\_\_\_\_

## LEARNING ACTIVITIES - continued

2. Name the major groups of microbes that can cause disease.

- |          |          |
|----------|----------|
| a. _____ | b. _____ |
| c. _____ | d. _____ |
| e. _____ | f. _____ |

3. Define in your own words:

Pathogenic: \_\_\_\_\_

Nonpathogenic: \_\_\_\_\_

Normal Flora: \_\_\_\_\_

4. What are the factors that determine whether an infection takes place?

- |          |
|----------|
| a. _____ |
| b. _____ |
| c. _____ |

## ACTIVITY #2. Portals of Entry and Exit and the Routes of Disease Transmission

**Directions:** Read the following information and complete the exercises.

Microbes enter our body through portals (passages) of entry. Microbes leave our body through portals (passages) of exit. Microbes might be airborne and enter through the nose and mouth of our respiratory system and leave the same way. Microbes might be in our food or water (enteric) and enter through our mouth and leave through our rectum (anus). Another microbe might be carried by an insect and enter our body through a bite in the skin. Another insect may bite the skin of the infected person and become a new carrier of disease. We might be in direct contact with microbes that can enter our body through our nose and rectum (the openings to the gastrointestinal tract) or through our vaginal and urinary openings (the entries to the genitourinary tract). Don't forget our eyes are a portal of entry.

Our body does have natural barriers or defenses against disease. Some of these include our skin, the hairs in our nose, our mucous membrane lining and enzymes in our gastrointestinal tract.

Now you can understand how microbes enter and exit our body. This helps you to understand how microbes are transmitted or transferred from one person to another. We must understand this to control or to stop the spread of infection and disease.



**LEARNING ACTIVITIES - continued**

**Directions:** Fill in the blanks correctly. Answers can be found on page 6 of this module.

1. Portals of entry are \_\_\_\_\_.
2. Portals of exit are \_\_\_\_\_.
3. Portals of entry and portals of exit include:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. Name four major routes of the spread of infection:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

**ACTIVITY #3. Groups of Microbes**

**Directions:** Read the following information.

There are different ways to identify microbes. They can be identified by their shape; for example, bacteria can be in the shape of a rod, a spiral, or a round form. Microbes also can be identified by the stain color they take up in the microscopic exam. Gram-positive bacteria are purple, while Gram-negative bacteria are red.

Microbes need specific conditions to grow and to multiply. The conditions in which microbes grow best include:

1. Darkness
2. Body temperature
  - a. too high a temperature destroys microbes
  - b. too low a temperature inhibits microbes
3. Moisture
4. Oxygen - not all microbes require oxygen.

**LEARNING ACTIVITIES - concluded**

Here is a simple summary of the major groups of disease-producing microbes.

1. **Virus:** Minute microorganism, smaller than bacteria that can pass through most filters. Virus requires living cells for growth. Some examples of diseases produced by virus include: measles, mumps, chicken pox, polio, common cold and hepatitis.
2. **Rickettsia:** Group of microorganisms which occupy a position between viruses and bacteria in their characteristics. They are transmitted by arthropods (lice, fleas, ticks, mites). Some examples of diseases produced by rickettsia are Rickettsialpox, Rocky Mountain Spotted Fever.
3. **Bacteria:** One cell, plant-like microorganisms that lack chlorophyll (green coloring) and come in many shapes and groupings. Certain bacteria have the ability to develop a capsule and go into a resting stage. This is called a spore. Spores are resistant to heat, drying, and the action of disinfectants. Some examples of bacteria and the diseases they cause include: S pneumonia causes pneumonia; tubercle bacillum causes Tuberculosis; B streptococci causes Strep throat infections; Staphylococci (a virus) causes many boils and wound infections, E. coli, Salmonella and Shigella cause inflammation of intestines (enteritis).
4. **Fungus:** A plant-like microorganism that lives on organic matter. Examples of diseases caused by a fungus are: Athletes Foot and Coccidioidmycosis (Valley Fever).
5. **Protozoa:** Simple, one cell animal microorganism. Examples of diseases caused by protozoa are: Malaria, Toxoplasmosis and Trichomoniasis.
6. **Parasite or worm:** An organism that gets food from a living plant, human, or animal host. Does not necessarily cause disease. Examples of conditions they cause are: Pinworms, Roundworms, and Tapeworms.

What you have just read is a very simple presentation of the infectious process. For example, there are 90 separate viruses which cause the common cold.

**ANSWERS****ACTIVITY #1**

1. Invisible living world of microbes
2.
  - a. virus
  - b. rickettsia
  - c. bacteria
  - d. fungus
  - e. protozoa
  - f. parasites or worms
3.
  - a. Microbes that are capable of producing disease
  - b. Microbes that do not cause disease
  - c. Microbes that are always around us and in us
4.
  - a. The virulence or strength of microbe
  - b. The number of microbes invading the body
  - c. The ability (natural immunity) to fight disease

**ACTIVITY #2**

1. passages through which microbes enter the body
2. passages through which microbes leave our body
3.
  - a. cuts in skin
  - b. respiratory tract
  - c. gastrointestinal tract
  - d. genitourinary tract
  - e. eyes
4.
  - a. airborne (respiratory)
  - b. food and waterborne (enteric)
  - c. insect (arthropod)
  - d. direct contact

## TERMINOLOGY

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The following is a list of terms and their definitions. These are the terms you should recognize and understand for the successful completion of Unit 6 of the Health Occupations Program. Directions for studying and using them are given in the modules of the unit.

ANTISEPSIS:

Process whereby chemicals are used on the skin for bacteriostatic and germicidal purposes.

ASEPSIS:

To be free from germs and infection.

ASEPSIS (medical):

A method used to prevent the spread of a communicable disease. Handwashing and isolation are examples.

ASEPSIS (surgical):

A method using sterile equipment and sterile supplies when entering the "sterile" interior of the body.

AUTOCLAVE:

An oven-like machine, using steam under pressure, in which supplies are subjected to intense heat for a specified period of time. It is also called a sterilizer.

BACILLUS:

Bacteria that is rod-shaped.

BACTERIA:

Used in this unit to mean the same as germs, microbes, and/or microorganisms.

CHEMICAL AGENT:

A chemical added to a solution in the correct dose which will kill bacteria or at least stop its growth.

COCCUS:

Bacteria that is round-shaped.

DISINFECTION:

Process whereby chemicals are used on floors and equipment for bacteriostatic and germicidal purposes.

DISINFECTION (concurrent):

Process used while disease is still in progress.

DISINFECTION (terminal):

Process used when disease has ended.

FUNGUS:

Simple plants lacking chlorophyll. Bread mold is an example.

MICROBIOLOGY:

The study of microorganisms.

**TERMINOLOGY - concluded****PATHOGENIC:**

Disease-causing or disease producing.

**PHYSICAL AGENTS:**

Nonchemical agents that will affect the growth of bacteria or destroy it. Examples of nonchemical agents are sunlight, temperature, heat, moisture, and pressure.

**SPIROCHETE:**

Corkscrew-shaped microorganisms.

**SPORE:**

Microorganisms that are in a restive, protective shell.

**STAPHYLOCOCCUS:**

Grape-like cluster organism which causes pimples and boils.

**STERILIZATION:**

Process whereby all bacteria are killed.

**STREPTOCOCCUS:**

Chain-like round organism which causes strep throat.

**VIRUS:**

The smallest in size of the microorganisms.



## POST TEST

### Module A



**Directions:** Read each question and indicate the answer you have decided is correct on your answer sheet. DO NOT WRITE ON THIS TEST.

1. List the three general principles of asepsis on the lines provided on your answer sheet.

a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_

2. From the following list, select eight terms that are related to the practice of asepsis. Write these terms on the lines provided on your answer sheet.

|                                  |                                |
|----------------------------------|--------------------------------|
| _____ a. Antisepsis              | _____ g. Terminal Disinfection |
| _____ b. Germs                   | _____ h. Microorganisms        |
| _____ c. Disinfection            | _____ i. Chemical Agent        |
| _____ d. Sterilization           | _____ j. Microbiology          |
| _____ e. Concurrent Disinfection | _____ k. Physical Agent        |
| _____ f. Bacteria                | _____ l. Autoclave             |

**Directions:** Read each statement and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet.

3. A principle of asepsis states:

a. Sterile surfaces can touch unsterile surfaces.  
b. Sterile surfaces can touch contaminated surfaces.  
c. Sterile surfaces can touch clean surfaces.  
d. Sterile surfaces touch only sterile surfaces.

4. A second principle of asepsis states:

a. Clean surfaces can touch dirty surfaces.  
b. Clean surfaces usually touch sterile surfaces.  
c. Clean surfaces can touch only unsterile surfaces.  
d. Clean surfaces can touch clean surfaces.

**POST TEST - continued**

5. A third principle of asepsis states:
  - a. Contaminated surfaces can touch clean surfaces.
  - b. Contaminated surfaces can touch contaminated surfaces.
  - c. Contaminated surfaces can touch sterile surfaces.
  - d. Contaminated surfaces can touch super sterile surfaces.
6. Which identifies antisepsis?
  - a. Process of asepsis used on floors.
  - b. Process of asepsis used on skin.
  - c. Process of asepsis used after disease.
  - d. Process of asepsis used during disease.
7. Which identifies disinfection?
  - a. Process of asepsis used on floors.
  - b. Process of asepsis used on skin.
  - c. Process of asepsis used after disease.
  - d. Process of asepsis used during disease.
8. Which identifies concurrent disinfection?
  - a. Process of asepsis used after disease is over.
  - b. Process of asepsis used during disease.
  - c. Process of asepsis used on floors.
  - d. Process of asepsis used on skin.
9. Which identifies terminal disinfection?
  - a. Process of asepsis used during disease.
  - b. Process of asepsis used after disease is over.
  - c. Process of asepsis used on floors.
  - d. Process of asepsis used on skin.
10. Which best identifies a chemical agent?
  - a. A solution that is bacteriostatic and may be germicidal.
  - b. A solution that is germicidal.
  - c. A solution that is used in steam.
  - d. A solution that is bacteriostatic.
11. Which best identifies a physical agent?
  - a. A chemical added to water.
  - b. A chemical added to equipment.
  - c. A process using sunlight and air.
  - d. A process using sunlight, heat, and pressure.

**POST TEST - concluded**

12. Which best identifies sterilization?
- a. Process where all bacteria are present.
  - b. Process where all bacteria are killed.
  - c. Process where no bacteria are killed.
  - d. Process where some bacteria are killed.
13. Which best identifies autoclave?
- a. Oven-like machine that has disinfectants.
  - b. Oven-like machine that has antiseptics.
  - c. Oven-like machine that sterilizes supplies.
  - d. Oven-like machine that deodorizes equipment.

## ANSWERS TO POST TEST

### Module A

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1. Three general principles of asepsis:
  - a. sterile touches sterile
  - b. clean touches clean
  - c. contaminated touches contaminated
2. Eight terms related to the practice of asepsis:
  - a. Antisepsis
  - c. Disinfection
  - d. Sterilization
  - e. Concurrent Disinfection
  - g. Terminal Disinfection
  - i. Chemical Agent
  - k. Physical Agent
  - l. Autoclave
3. d
4. d
5. b
6. b
7. a
8. b
9. b
10. a
11. d
12. b
13. c

## POST TEST

### Module B

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**Directions:** Applying the information learned in Module B, demonstrate the steps of the following activities to the satisfaction of your instructor.

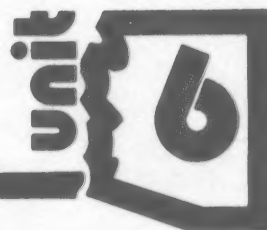
1. Handwashing:
  - a. For all nursing care
  - b. For isolation or protective care
2. Isolation:
  - a. Putting on a gown for isolation
  - b. Gowning out of isolation
  - c. Double bagging out of isolation
3. Surgical Asepsis:
  - a. Putting on sterile gloves
  - b. Opening sterile supplies
  - c. Changing sterile dressings



## ANSWERS TO POST TEST

### Module B

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1. Refer to steps listed in Module B
  - a. page 2-3
  - b. page 3
2. Refer to steps listed in Module B
  - a. page 5
  - b. page 6
  - c. page 7
3. Refer to steps listed in Module B
  - a. page 9-10
  - b. page 11-12
  - c. page 12-13

## POST TEST

### Module C



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. There may be more than one correct answer for each question. DO NOT WRITE ON THIS TEST.

1. Microbiology is the study of:
  - a. small animals
  - b. disease producing microbes
  - c. the invisible-living world of microorganisms or microbes
  - d. bones, their function and structure
2. The major groups of microbes that can cause disease are:
  - a. staphylococci and streptococci
  - b. virus, rickettsia and bacteria
  - c. fungus, protozoa and parasites
  - d. pinworms, roundworms and tapeworms
3. The term pathogenic microbe refers to the:
  - a. microbes that are all around us
  - b. microbes that are capable of producing disease
  - c. germs around us
  - d. microbes we study under a microscope
4. The term nonpathogenic microbes refers to the:
  - a. microbes all around us
  - b. newly discovered microbes
  - c. microbes that do not cause disease
5. The term normal flora refers to the:
  - a. flowers all around us
  - b. microbes that are always around us and in us
  - c. number of microbes around us
  - d. microbes that cause disease
6. The three factors that determine whether an infection takes place are:
  - a. how the microbes enter our body
  - b. the number of microbes invading the body
  - c. the strength of the microbe
  - d. the ability (natural immunity) of the body to fight disease

**POST TEST - concluded**

7. Portals of entry and portals of exit are:
- a. how we enter the program and how we leave the program
  - b. passages through which microbes enter our body and leave our body
  - c. cuts in the skin
  - d. the major routes of the spread of infection
8. The major routes of the spread of infection are:
- a. animals, food, air
  - b. respiratory and gastrointestinal tract
  - c. indirect and direct contact
  - d. airborne, enteric, insect, and direct contact
9. Microbes can be identified according to:
- a. their shape and the stain they pick up in microscopic exam
  - b. alphabetic order
  - c. the Latin names
  - d. the diseases they cause

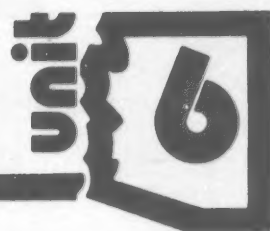
**Directions:** Match the correct portals of entry and portals of exit on your answer sheet.

- |                            |                             |
|----------------------------|-----------------------------|
| 10. cut in skin            | a. eyes                     |
| 11. respiratory tract      | b. vaginal-urinary openings |
| 12. gastrointestinal tract | c. incision, cut, abrasion  |
| 13. genitourinary tract    | d. nose/mouth               |
| 14. eyes                   | e. mouth/rectum             |

## ANSWERS TO POST TEST

### Module C

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1. c
2. b & c
3. b
4. c
5. b
6. b, c, d
7. b
8. d
9. a
10. c
11. d
12. e
13. b
14. a

Unit 7 stresses the origin, development and use of medical terminology. Included are professional words, phrases, abbreviations, symbols, and surgical and diagnostic terms.

### **MEDICAL TERMINOLOGY**

Module A - Words and Phrases Used in Making Nursing Observations

Module B - Roots, Prefixes, and Suffixes

Module C - Commonly Used Abbreviations and Symbols

Module D - Surgical and Diagnostic Terms

Post Tests: 1. Module A  
2. Module B  
3. Module C  
4. Module D

Answer Sheets

When you have completed the Learning Activities and are ready for a test, or wish to challenge a test, please see your instructor.

### ***Suggested References***

1. Taber's Cyclopedic Medical Dictionary. Philadelphia: F.A. Davis Incorporated, 1973.
2. McKenna, Margaret. Assessing Skin Color Changes in Ethnic People of Color. University of Seattle, Seattle, Washington 98195. (audiovisual)



## MEDICAL TERMINOLOGY

### Module A - Words and Phrases Used in Making Nursing Observations



#### RATIONALE

While you care for people, you will need to observe them and to report what you see in a special way. This process is called "making nursing observations".

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the meanings of the following in Nursing Observation Terms:

- |                             |             |                                         |
|-----------------------------|-------------|-----------------------------------------|
| a. General Appearance       | g. Walking  | i. Bleeding and Drainage from Incisions |
| b. Skin, Eyes, and Eyelids  | h. Appetite | m. Dressings and Incisions              |
| c. Respiration or Breathing | i. Speech   | n. Urine                                |
| d. Vomiting                 | j. Pulse    | o. Stools or Feces                      |
| e. Levels of Consciousness  | k. Pain     | p. Appearance of Abdomen                |
| f. Emotional Response       |             |                                         |

#### LEARNING ACTIVITIES

**Directions:** All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

#### ACTIVITY. Nursing Observation Terms

##### General Appearance

**Directions:** Read the following material and complete the exercise.

In making a nursing observation, the first major category to consider is the patient's overall general appearance. There are three areas you may notice at a glance -- the patient's size, shape, and posture. The following information tells you how the three areas are to be described.

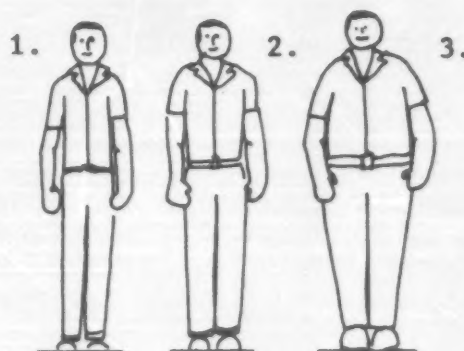
## LEARNING ACTIVITIES - continued

Size

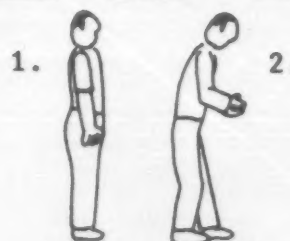
1. tall—women over five feet, six inches; and men over six feet.
2. medium height—women between five feet, two inches and five feet, six inches; and men between five feet, ten inches and six feet.
3. short—women under five feet, two inches; and men under five feet, ten inches.

Shape

1. thin—someone who looks skinny. Actual weight doesn't really determine whether one is thin.
2. average build—someone who is not thin and not fat. "Looks good".
3. obese—fat.

Posture

1. straight or erect—stands straight, not slumped over.
2. stooped—head down, leaning forward.



**Directions:** Fill in the chart below so that it describes your general appearance.

Name \_\_\_\_\_

General Appearance

Size \_\_\_\_\_

Shape \_\_\_\_\_

Posture \_\_\_\_\_

**LEARNING ACTIVITIES - continued**

Now find another student whose general appearance is different from yours and fill in the chart below on that person.

Name \_\_\_\_\_

**General Appearance**

Size \_\_\_\_\_

Shape \_\_\_\_\_

Posture \_\_\_\_\_

Now see if you and your partner agree on how you have described each other.

**Skin, Eyes, and Eyelids**

**Directions:** Read the following information and complete the exercise. Also, if possible, view the slide-tape presentation Assessing Skin Color Changes in Ethnic People of Color by Margaret McKenna, University of Seattle, Seattle, Washington 98195.

The next three areas to notice in making a nursing observation are also external, but not as readily noticeable as a person's size, shape, and posture. They are the skin, eyes, and eyelids. The first thing to observe about these three features is whether they are normal or abnormal. If they are abnormal, you must then describe the abnormalities.

**Skin**

People have varying amounts of melanin (skin pigment). Depending on your patients' ethnic background, their normal complexion color will range from light to dark tones. Some variables that affect skin color changes are: room temperature, emotional state, and edema (swelling).

1. Normal skin is clear and free from irritation; no bumps, pimples or acne.
2. A patient with abnormal skin might have:
  - a. a rash or hives. The skin might be reddened and have welts. (A welt is a raised spot or lump, like some people get from mosquito bites).
  - b. mottled skin (blotchy or patched). These blotches or patches may be either lighter or darker than the patients' skin color.
  - c. variations in skin color.

How and what you observe concerning the skin color of a patient will vary depending on environmental factors and the normal complexion color of the patient. The chart below for light and dark complexions will help you with these variations.

## LEARNING ACTIVITIES - continued

Light Complexions

1. flushed—reddened as in blushing or with fever. Redness may be increased if the patient is embarrassed or excessively warm.
2. pallor—unusual paleness of the skin. In really light complexioned people, freckles may seem to "stand out" in pallor. Air conditioning or lying on a cold examination table may cause pallor.
3. cyanosis—lips may look blue. Skin may have a "pasty" look. If you think a person is cyanotic, you may try applying sufficient pressure to the nailbeds and observe how quickly the color returns. (In cyanosis, the color returns slowly.) This is called capillary refill.
4. jaundice—yellowish discoloration of the skin. This can be most easily observed in the sclera of the eye, mucous membranes and lips.

**Eyes**

1. Normal eyes are clear and bright. The eyes shine with reflected light. They are glossy like some pictures or enamel paint.

The pupils are of the same size and change size when light is flashed into the eyes.

2. Abnormal eyes may be:
  - a. dull—eyes are not bright and shiny. They may be flat looking like flat wall paint. They are not glossy like some pictures.
  - b. inflamed—eyes are swollen or sore, often with secretions.
  - c. reddened—whites of eyes (sclerae) are bloodshot as if crying or suffering from hayfever or a hangover. Redness of the eyes may be more difficult to recognize in dark-skinned people since the sclerae may be normally yellowish-brown toned. The redness may not be really obvious unless you look closely.

Dark Complexions

1. flushed—reddened as in blushing or with fever. Look closely at the forehead and cheeks; these areas will probably appear darker if the patient is flushed.
2. pallor—no red or pink tones are seen. The patient lacks the tones that give black or brown skin its "glow" or "living" color. Darker complexions also become lighter with edema.
3. cyanosis—skin becomes grey looking, especially the earlobes, around the mouth, over the cheeks, and the nailbeds. Again, the red tones that make the skin seem alive are not present.
4. jaundice—dark complexions show jaundice in the same areas: the sclera, mucous membranes and lips.



**LEARNING ACTIVITIES - continued**

- d. abnormal in pupil size — very small (constricted) as when you go out into very bright sunlight; or, very large (dilated) as when you have been in a dimly lit room for some time. Abnormal pupils may not change size when light is flashed into the eyes.

**Eyelids**

1. Normal eyelids open and close easily.
2. Abnormal eyelids droop (ptosis), or they may blink excessively.

When making observations about skin, eyes, and eyelids, be sure you have good light. In the daytime, open drapes or blinds so you will have adequate natural light. At night, turn on enough light to see your patient clearly; a standing light, with at least a 60-watt bulb, will usually be sufficient.

**Directions:** Now find a mirror with a good light and describe yourself using nursing terms you have learned.

Name \_\_\_\_\_

Skin \_\_\_\_\_

Eyes \_\_\_\_\_

Eyelids \_\_\_\_\_

**Respiration or Breathing**

**Directions:** Read the following material and complete the exercise.

There are other things you may notice right away about your patient. Is the person coughing or having trouble breathing? These are also things you need to learn to describe in nursing terms.

**Breathing**

1. Normal breathing is quiet, not noisy.
2. Abnormal breathing may include:
  - a. wheezing
  - b. snoring sounds, noise
  - c. a rate or rhythm that is different. Terms to describe these differences in rate or rhythm are:
    - (1) dyspnea — irregular, painful breathing
    - (2) apnea — not breathing at all



**LEARNING ACTIVITIES - continued**

- (3) hyperpnea -- breathing very rapidly
- (4) Cheyne-Stokes breathing -- stop and go breathing
- (5) orthopnea -- the ability to breath only when sitting upright or propped up on pillows.

**Coughing**

If your patient is coughing, there are terms to describe the cough which will tell your team leader or the physician exactly what is happening with the patient.

- 1. Productive cough - coughing up many secretions (sputum)
- 2. Nonproductive cough - coughs but does not produce sputum
- 3. Persistent cough - coughs often and the cough hangs on for a long time (days or even weeks)
- 4. Intermittent - cough comes and goes

In addition to describing the patient's cough, you also have to describe the sputum of a productive cough. Terms to describe sputum are:

- 1. Tenacious - stringy, thick sputum
- 2. Hemoptysis - spitting up blood
- 3. Clear
- 4. Yellow
- 5. Blood-tinged

**Directions:** Read the following paragraph and describe the patient's breathing and coughing in the space provided below. Use the nursing terms you have learned in this activity. Answers can be found on page 18 of this module.

Priscilla Patient is the patient in 422-B. She is often coughing and is coughing up reddish-looking secretions. During the periods when she is not coughing, Ms. Patient is having obvious difficulty in breathing.

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**LEARNING ACTIVITIES - continued****Vomiting**

**Directions:** Read the following information and complete the exercise.

Imagine you have answered a patient's call light and find the patient vomiting. There are nursing terms you will need to know to correctly describe the situation. Some terms to describe vomiting follow.

1. Emesis - act of vomiting
2. Projectile emesis - vomiting with great force
3. Undigested emesis - vomiting of undigested food
4. Hematemesis - vomiting of blood, may or may not have clots
5. Fecal emesis - vomiting of body wastes (stool)
6. Liquid emesis - may be green or clear in color

There are also terms which describe the odor of vomit. Here are some terms to describe odor.

1. Sweet or fruity smelling
2. Foul smelling (has a bad odor)

**Directions:** Match these terms with their definitions. Check your answers by referring to the preceding information.

- |                     |                                |
|---------------------|--------------------------------|
| _____ 1. emesis     | A. great force                 |
| _____ 2. projectile | B. smells bad                  |
| _____ 3. undigested | C. act of vomiting             |
| _____ 4. foul       | D. identifiable food particles |

**Levels of Consciousness**

**Directions:** Read the following material and complete the exercise.

There are some things that are more difficult to find out about your patients. These are primarily things that involve talking to your patients and asking them questions.

One of the first things you need to know is the mental alertness of the patient. The following terms related to this alertness are called the levels of consciousness.

1. Alert - the patient is able to speak and knows where he/she is and is able to carry on a conversation that makes sense. NOTE: If you speak only English and your patient speaks very little English, you may not be able to make a judgment

**LEARNING ACTIVITIES - continued**

about alertness. Don't guess - let your team leader know so an interpreter may be found.

2. Restless - the patient tosses and turns in bed, picks at the sheets, or may speak sharply in response to questions.
3. Stupor - the patient can be aroused but may not make much sense when asked questions. The patient responds to pain (for example, moving a patient with a broken leg), or sound by opening his/her eyes but does not respond verbally.
4. Comatose - the patient does not respond to any stimuli (usually present before death).

**Directions:** Match these terms with their definitions.

- |                                 |                                |
|---------------------------------|--------------------------------|
| _____ 1. comatose               | A. answers questions correctly |
| _____ 2. restless               | B. groans when turned          |
| _____ 3. stupor                 | C. does not respond            |
| _____ 4. alert                  | D. alertness of the patient    |
| _____ 5. level of consciousness | E. picks at sheets             |

**Emotional Response**

**Directions:** Read the following information and complete the exercise.

Sometimes you may need to relate to your team leader or physician your patient's emotional response. This means you will have to try to determine how patients feel by looking at them. Here are some terms to describe emotional response.

1. Worried or anxious - imagine a mother waiting at a bus stop for a child. The bus was due at 4:00 p.m., it is now 4:15. The facial expressions and actions of this mother probably express worry or anxiety.
2. Afraid or frightened - do you remember the first time another trainee was assigned a patient with two tubes? The facial expressions and actions of your fellow trainee probably reflected fear.
3. Tense or frowning - think of a time 5 minutes before a test. Do you remember the expressions on faces around you? You were probably seeing tense and frowning faces.
4. Relaxed or smiling - your fellow trainees' faces after successfully completing that test are good examples of relaxed or smiling emotional responses.

**LEARNING ACTIVITIES - continued**

**Directions:** Read each situation below and the various lettered emotional responses. When you have decided which answer is correct, circle the appropriate letter. Answers can be found on page 18 of this module.

**SITUATION 1:** Mr. Gonzales is pacing the floor in the fathers' waiting room at a local hospital. Mrs. Gonzales has been in labor for 5 hours but still has not delivered. Mr. Gonzales' facial expressions and actions might be:

- a. worried or anxious
- b. frightened or afraid
- c. relaxed or smiling

**SITUATION 2:** Ms. Nurse comes into the waiting room and tells Mr. Gonzales that his wife has just had a baby boy. Mr. Gonzales' facial expressions and emotional response might be.

- a. worried or anxious
- b. tense or frowning
- c. relaxed or smiling

**SITUATION 3:** You are driving on the freeway near the Congress St. entrance. Suddenly a car comes onto the freeway. The oncoming car is in your lane and there are cars in all other lanes. Traffic is moving at 55 miles per hour. Your emotional response and actions would probably be:

- a. worried or anxious
- b. relaxed and smiling
- c. afraid or frightened

**SITUATION 4:** You are sitting in the lunch room at the Skill Center. Your pay check was supposed to come yesterday but did not. Your rent was due last Friday but the landlord gave you until today to pay it. You don't have a telephone at home so you have no way of finding out if your check came. Your facial expressions and emotional response might be:

- a. relaxed and smiling
- b. tense or frowning
- c. afraid or frightened

**LEARNING ACTIVITIES - continued****Walking**

**Directions:** Read the following material and complete the exercise. You may sometimes need to describe a patient's walk. Some precise terms to help you do this follow.

1. Normal walk - a steady walk that is not wavering.
2. Abnormal walk - might be described by using any of the three following terms:
  - a. Unsteady - weaving, may be having trouble keeping balance.
  - b. Faltering - probably best understood by imagining a child just learning to walk. The child starts and then stops to get a better balance, then walks again.
  - c. Swaying - beginning to fall and then straightening up again, this also has to do with balance.

**Directions:** Fill in the blanks in the following sentences. Check your answers by referring to the preceding information.

If I walk with a steady rhythm and regular rate, my walk is said to be \_\_\_\_\_.

An abnormal walk can be described by the words \_\_\_\_\_, \_\_\_\_\_ and/or \_\_\_\_\_.

**Appetite**

**Directions:** Read the following material and complete the exercise.

How well a patient eats must be described each and every time that patient is offered anything to eat. By clearly defining how much your patient ate, your team leader and your patient's doctor will know exactly how well the patient is eating. The terms for appetite and their corresponding percentages are listed below.

1. Anorexia - having no appetite. The patient just pushed food around on the plate or possibly refuses the tray altogether. If your patient is on a liquid diet, she/he possibly takes only a small sip of what is offered.
2. Good appetite - this means the patient ate 85% to 100% of the meal served. This might mean all of the meat, vegetables, salad, bread, butter, dessert, and milk served; or, it might mean all but one bite of toast and one sip of tea if those were the only things offered.
3. Fair appetite - the patient ate 50% to 80% of the meal served.
4. Poor appetite - the patient ate between 20% and 45% of what was served.



**LEARNING ACTIVITIES -- continued**

**Directions:** Read the following paragraph and fill in the blanks in the statements below. Check your answers by referring to the preceding information.

Let's visit Priscilla Patient again. Priscilla Patient has been served breakfast prior to x-ray. She has been given a pot of tea and two slices of dry toast. When you go to pick up her tray, you find a couple of bites of toast left and all the tea gone. Ms. Patient returns from x-ray at noon and is served her regular lunch of roast beef, mashed potatoes, green beans, sliced tomato salad, bread, butter, cake, and milk. Ms. Patient pushes the green beans around a little, makes a hole in the mashed potatoes, butters one slice of bread and eats a couple of bites, eats one slice of tomato, and opens her milk.

Ms. Patient's appetite at breakfast was \_\_\_\_\_.

Ms. Patient's appetite at lunch was \_\_\_\_\_.

**Speech**

**Directions:** Read the following information and complete the exercise.

A patient's speech is often an indicator of alertness. Normal speech is fluent and coherent. Speech is fluent when a patient speaks without difficulty. Coherent speech makes sense. For example, if patients know who they are and what they are doing in the hospital, you may assume they are coherent. **Note:** If you speak only English and your patient speaks little or no English, you may not be able to make a judgment about fluency and coherency. Don't guess -- let your team leader know so an interpreter may be found.

Abnormal speech may be described with the following terms.

1. Stuttering - repeating short phrases or syllables rapidly. This does not mean your patient is incoherent. Some people may stutter in tense situations such as being admitted to the hospital.
2. Slurred speech - letters or words are unclear. Words seem to drop off at the end or sometimes run together. Patients who have had strokes sometimes slur; they know the words but have trouble saying them.
3. Incoherent - what is said doesn't make sense, speech just sort of rambles on. Words or phrases may be completely unrelated.
4. Disoriented - patient doesn't know his/her own name, may not know where he/she is, or what day or time it is. Very often, patient may think the time is some past time.
5. Aphasia - not able to talk at all.

**LEARNING ACTIVITIES - continued**

**Directions:** Match the words in the column at the left with their definitions in the column at the right. Check your answers by referring to the preceding information.

- |                      |                                       |
|----------------------|---------------------------------------|
| _____ 1. aphasia     | A. speaks without difficulty          |
| _____ 2. disoriented | B. not able to talk                   |
| _____ 3. coherent    | C. makes no sense                     |
| _____ 4. incoherent  | D. does not know name, time, or place |
| _____ 5. fluent      | E. makes sense                        |

**Pulse**

**Directions:** Read the following information and complete the exercise.

A patient's pulse is reported in numbers (beats per minute); for example, "pulse 72".

A normal pulse is a lot like music; there is a regular, easily felt beat. The rhythm is regular with a rate between 60 and 100 for adults, and between 70 and 120 for children under 12.

Sometimes it is helpful to know the terms for pulse rates that are too fast or too slow. There are also terms for the variations in rhythm and volume of a pulse. The following are terms to help you define an abnormal pulse.

1. Irregular rhythm - rhythm is imperfect, perhaps an extra long pause (skipped beat), or possibly several beats very close together.
2. Tachycardia - pulse beats too fast, more than 100 for adults, and more than 120 for children under 12.
3. Bradycardia - pulse beats too slowly, less than 60 for adults and less than 70 for children under 12.
4. Thready - pulse is hard to find, and when you do find it, it seems to come and go.
5. Feeble - very weak.
6. Bounding - pulse is very forceful and may seem to pound against your fingertips when you are checking it.

**LEARNING ACTIVITIES - continued**

**Directions:** Match the terms in the column at the left with their definitions in the column at the right. Check your answers with the preceding information.

- |                       |                                     |
|-----------------------|-------------------------------------|
| _____ 1. feeble pulse | A. regular rate, rhythm, and volume |
| _____ 2. tachycardia  | B. pulse pounds against fingertips  |
| _____ 3. normal pulse | C. pulse very weak                  |
| _____ 4. bradycardia  | D. pulse too slow                   |
| _____ 5. bounding     | E. pulse too fast                   |

**Pain**

**Directions:** Read the following material and complete the exercise.

Pain means different things to different people. Here are nursing terms with some definite guidelines to help you describe the amount, quality, and duration of a patient's pain.

1. Severe (or acute) pain - a great deal of pain that doesn't quickly go away; for instance, a finger smashed in a car door, or a hand burned with hot grease. This type of pain needs immediate attention.
2. Sharp pain - a sharp, cutting pain; for example, from a knife cut.
3. Radiating pain - the kind of pain that starts in one area and ends in another. Did you ever catch a baseball without a glove and have it hurt all the way to your shoulder? That's radiating pain!
4. Localized pain - pain that stays in one place. When you burn your hand, the pain stays in one place. (Pain can be described in more than one term. For example, if you burn your hand with hot grease, it can be severe and localized.)
5. Generalized pain - pain that goes all over the body; for example, when you have the flu and your whole body hurts.
6. Persistent or chronic pain - this type of pain is present all the time; it doesn't go away.
7. Transient pain - pain that lasts for a short time; for example, when you are running and you get a "stitch" in your side that goes away as soon as you slow down.
8. Intermittent pain - pain that comes and goes; for example, labor pains and stomach cramps.

**LEARNING ACTIVITIES - continued**

**Directions:** Match the terms below with their correct definitions. Check your answers with the preceding information.

- |                                     |                                      |
|-------------------------------------|--------------------------------------|
| _____ 1. transient pain             | A. hurts all the time                |
| _____ 2. localized pain             | B. a great deal of pain              |
| _____ 3. radiating pain             | C. comes and goes                    |
| _____ 4. severe or acute pain       | D. stays in one place                |
| _____ 5. intermittent pain          | E. cutting, stabbing pain            |
| _____ 6. generalized pain           | F. lasts for a short time            |
| _____ 7. sharp pain                 | G. hurts all over                    |
| _____ 8. persistent or chronic pain | H. begins one place and ends another |

**Bleeding and Drainage from Incisions**

**Directions:** Read the following material and complete the exercise.

The terms to describe bleeding tell how much blood is seen and how it is flowing. There can be bleeding from obvious sources such as a nosebleed or a cut, and from not so obvious sources like bleeding from under a dressing or vaginal bleeding.

The terms to describe drainage tells you how much drainage there is and what it looks like.

1. Scant - when there is very little drainage or bleeding. In the case of vaginal bleeding or drainage from an incision, the amount of wetness (blood or drainage) seen on the pad or dressing would be about the size of a penny.
2. Oozing - blood or drainage that is trickling very slowly. The blood from a nosebleed (epistaxis) usually oozes.
3. Profuse or copious - large amounts of blood or drainage. You might see blood gushing from a deep cut and describe it as "profuse bleeding". In vaginal bleeding, pads might be soaked quickly. "Copious drainage" from an incision would completely soak the bandage.
4. Moderate - may refer to either bleeding or drainage. The amount of blood or drainage would be larger than the penny we talked about earlier but would not completely soak a bandage or pad. For example, if you had an under bandage that was 4 inches long, and 2 inches of it was wet with drainage, this would be considered a "moderate" amount of drainage.
5. Bright red drainage - if you superficially cut your hand while slicing vegetables, the blood coming through the paper towel you wrap around the cut would probably be bright red.



**LEARNING ACTIVITIES - continued**

6. Dark red drainage - would look like the blood in a syringe from a blood test.
7. Serosanguineous drainage - when you cut yourself and the bleeding stops but a yellow fluid keeps oozing from the cut, that is serum. Sanguineous means bloody. So, serosanguineous drainage is drainage that contains both blood and serum. It is pink.
8. Clear drainage - the bandage is wet but the drainage is colorless.

**Directions:** Read the following paragraph and use the terms you have just learned to complete the statements. Check your answers with the preceding information.

Let's visit with Priscilla Patient again. Ms. Patient has been to surgery and is now back in her room. Your team leader sends you to check Ms. Patient's bandage for drainage. When you first check the under bandage, it is wet from one end to the other with a pink drainage. The doctor changes the bandage and you are sent back to check it four hours later. Now the bandage has a wet spot about the size of a penny.

How would you describe the first bandage check? \_\_\_\_\_

The amount of drainage the second time was \_\_\_\_\_.

**Dressings and Incisions**

**Directions:** Read the following information and complete the exercise.

Dressings are bandages placed over wounds, cuts, or incisions. They are described in terms of how they look and what size they are. Dressings may be as small as Band-Aids or as large as bath towels. Clean, dirty, wet, or dry are terms to describe how a dressing looks.

1. Clean - a dressing that is not soiled in any way and that is absolutely dry.
2. Dirty - a dressing that is soiled with either blood or other drainage; may be either wet or dry.
3. Wet - a dressing that is wet with drainage.
4. Dry - a dressing that is absolutely dry; it may be either clean or dirty.

Dressings usually cover incisions. An incision is a cut made into the body in order to either remove or repair something. There are two terms generally used to describe how an incision looks.

1. Clean - the skin around an incision is normal flesh color.
2. Reddened - the skin around an incision is reddened and possibly inflamed.



**LEARNING ACTIVITIES - continued**

**Directions:** Match the terms on the left with their correct definitions on the right. Check your answers by referring to the preceding information.

- |                         |                                                    |
|-------------------------|----------------------------------------------------|
| _____ 1. dry dressing   | A. bandage not soiled in any way                   |
| _____ 2. incision       | B. bandage that is not wet, may be clean or soiled |
| _____ 3. clean dressing | C. cut into the body                               |
| _____ 4. wet dressing   | D. dressing with serosanguineous drainage          |

**Urine**

**Directions:** Read the following information and complete the exercise.

General terms used to describe the discharge of urine from the body are voiding, urination, and micturition. These three terms mean exactly the same thing: the act of discharging urine from the body.

You may be asked to describe how urine looks. The following nursing terms will help you do this clearly.

1. Clear and amber - considered the normal appearance of urine.
2. Cloudy - urine that is not clear, particles of matter may be visible.
3. Bloody - urine that obviously has blood in it (hematuria).

You will also need the following terms to describe how much urine is discharged.

1. Anuria - discharging no urine at all.
2. Moderate - discharging between 500 to 2500 cc of urine per day.
3. Oliguria - discharging between 0 and 500 cc of urine per day.
4. Polyuria - discharging more than 2500 cc of urine per day.

Here are some other terms to help you describe urine and its discharge.

1. Nocturia - having to get up during the night to urinate.
2. Pyuria - pus in the urine, can only be determined from microscopic examination.
3. Dysuria - painful or difficult urination.
4. Continent - able to control the discharge of urine.

**LEARNING ACTIVITIES - concluded**

5. Incontinent - unable to control the discharge of urine.
6. Frequency - voiding six to eight times within eight hours.

**Directions:** Read the following paragraph and use the nursing terms you have learned to complete the statements on page 17. Check your answers with the preceding information.

Let's visit Priscilla Patient again. You answer Ms. Patient's light and find that she has been unable to pass any urine after surgery. You tell your team leader and Ms. Patient is catheterized. The amount of urine obtained is about 250 cc. The urine is bloody. Four hours later, Ms. Patient is able to discharge urine without help; however, she experiences a great deal of pain during urination.

The terms used to describe Ms. Patient's inability to pass urine is \_\_\_\_\_.

The appearance of blood in the urine is termed \_\_\_\_\_.

Painful urination is \_\_\_\_\_.

When Ms. Patient did urinate, she was able to control the discharge of urine so she is said to be \_\_\_\_\_.

**Stools or Feces**

**Directions:** Read the following information and complete the exercise.

Feces or stools are the waste product of digestion. These are terms to describe stools or feces. Stools are considered normal when they are soft, formed, and brown in color. Abnormal feces may be hard, watery, or semi-liquid. Abnormal colors may be green, black (tarry), bright red, or clay colored (yellowish-tan).

**Directions:** Using the terms you have learned, fill in the blanks below. Check your answers with the preceding information.

Normal feces are \_\_\_\_\_ in color and \_\_\_\_\_ in consistency.

A watery stool is said to be \_\_\_\_\_.

The waste product of digestion is \_\_\_\_\_.

**Appearance of the Abdomen**

**Directions:** Read the following information.

The appearance of the abdomen is described in terms of size and touch or feel.

1. Protruding or distended - big and fat, sticking out as in pregnancy, fullness.
2. Flaccid - flabby
3. Rigid - hard to the touch, like a board or table might feel.
4. Flat - not protruding, usually soft to the touch.

**ANSWERS****Respiration or Breathing**

The things you should have written about Ms. Patient are: dyspnea, persistent cough, productive cough, blood-tinged sputum. These things may be listed in any order. The important thing is that you let your team leader know all of them.

**Emotional Response**

1. a
2. c
3. c
4. b

## MEDICAL TERMINOLOGY

### Module B - Roots, Prefixes and Suffixes



#### RATIONALE

Studying the following medical roots, prefixes, and suffixes will help you in learning the entire section on medical terminology and in learning terminology in other sections. Since roots, prefixes, and suffixes are repeated again and again in words, you will be able to cut out a great deal of memory work and rely on your ability to recognize familiar parts of the word in order to figure out the meaning. The knowledge of roots, prefixes, and suffixes will also aid you in dealing with unfamiliar terms throughout your medical career.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the definitions and medical terms used as examples for:

1. Roots
2. Prefixes
3. Suffixes

#### LEARNING ACTIVITIES

**Directions:** All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

#### ACTIVITY #1. Roots

**Directions:** Read the following information about roots and complete the exercises.

Roots are defined as the main bodies of words. Roots usually give us the meanings of words. The English language obtains many of its roots or stems from other languages such as Greek, Spanish, Latin, and French. The terms root and stem can both be used when referring to the main bodies of words; however, we will use the term root in Unit 7.

For convenience, roots have been grouped according to body systems whenever possible.

**LEARNING ACTIVITIES - continued****Roots Pertaining to Bones and Muscles**

|         |                         |
|---------|-------------------------|
| csteo:  | bone                    |
| ortho:  | bone                    |
| myelos: | marrow (center of bone) |
| manus:  | hand                    |
| cost:   | rib                     |
| pedes:  | foot                    |
| arthro: | joint                   |
| myo:    | muscle                  |





## LEARNING ACTIVITIES - continued

| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u>    | <u>DISCUSSION/DEFINITION</u>                                                    |
|-------------|----------------|-------------------|---------------------------------------------------------------------------------|
| osteo       | bone           | osteoarthritis    | osteo - bone; arthritis - inflammation of joints; "inflammation of bone joints" |
| myelos      | marrow         | myelogenous       | myelo - marrow; gen - originating; "originating in marrow"                      |
| manus       | hand           | manipulation      | mani - to move by hand; "manually moving"                                       |
| cost        | rib            | intercostal space | inter - between; cost - rib; "space between ribs"                               |
| pedes       | foot           | pedal pulse       | pedal - foot; "pulse found in foot"                                             |
| arthro      | joint          | arthritis         | arthro - joint; itis - inflammation; "inflammation of joint"                    |
| myo         | muscle         | myositis          | myo - muscle; itis - inflammation; "inflammation of muscle"                     |

## Exercise 1.

**Directions:** Match the following roots with their meanings. Answers can be found on page 27 of Module B.

- |               |           |
|---------------|-----------|
| ___ 1. osteo  | A. hand   |
| ___ 2. myelos | B. rib    |
| ___ 3. manus  | C. muscle |
| ___ 4. cost   | D. joint  |
| ___ 5. pedes  | E. marrow |
| ___ 6. arthro | F. foot   |
| ___ 7. myo    | G. bone   |

**LEARNING ACTIVITIES - continued****Exercise 2.**

**Directions:** List one example for each root. Possible answers to this exercise are found on page 27 of Module B.

1. osteo \_\_\_\_\_
2. myelos \_\_\_\_\_
3. manus \_\_\_\_\_
4. cost \_\_\_\_\_
5. pedes \_\_\_\_\_
6. arthro \_\_\_\_\_
7. myo \_\_\_\_\_

**Roots Pertaining to Breathing**

|          |            |
|----------|------------|
| rhino:   | nose       |
| pharynx: | throat     |
| larynx:  | voice box  |
| trachea: | windpipe   |
| pnea:    | breathing  |
| pneumo:  | air (lung) |
| thorax:  | chest      |



| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                             |
|-------------|----------------|----------------|--------------------------------------------------------------------------|
| rhino       | nose           | rhinitis       | rhin - nose; itis - inflammation; "inflammation of the nose"             |
| pharynx     | throat         | pharyngitis    | pharynx - throat; itis - inflammation; "inflammation of the throat"      |
| larynx      | voice box      | laryngitis     | larynx - voice box; itis - inflammation; "inflammation of the voice box" |
| trachea     | windpipe       | tracheotomy    | trachea - windpipe; otomy - incision into; "incision into windpipe"      |

**LEARNING ACTIVITIES - continued**

| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                              |
|-------------|----------------|----------------|---------------------------------------------------------------------------|
| pnea        | breathing      | eupnea         | eu - normal; pnea - breathing; "normal breathing"                         |
| pneumo      | air (lung)     | pneumonitis    | pneumo - air (lung); itis - inflammation; "inflammation of the lung"      |
| thorax      | chest          | thoracotomy    | thorax - chest; otomy - incision into; "surgical incision into the chest" |

**Exercise 3.**

**Directions:** Match the following roots with their meanings. Answers to this exercise are found on page 27 of Module B.

- |                |               |
|----------------|---------------|
| ___ 1. rhino   | A. chest      |
| ___ 2. pharynx | B. voice box  |
| ___ 3. larynx  | C. nose       |
| ___ 4. trachea | D. throat     |
| ___ 5. pnea    | E. windpipe   |
| ___ 6. pneumo  | F. breathing  |
| ___ 7. thorax  | G. air (lung) |

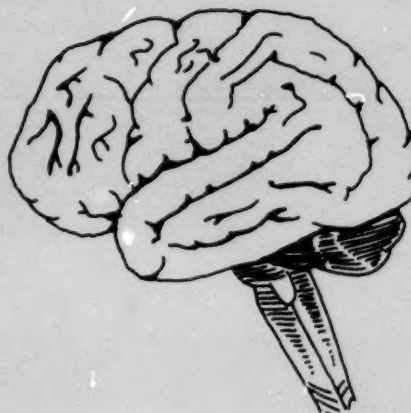
**Exercise 4.**

**Directions:** Write one example for each root. Possible answers to this exercise are found on page 27 of Module B.

- |            |       |
|------------|-------|
| 1. rhino   | _____ |
| 2. pharynx | _____ |
| 3. larynx  | _____ |
| 4. trachea | _____ |
| 5. pnea    | _____ |
| 6. pneumo  | _____ |
| 7. thorax  | _____ |

**LEARNING ACTIVITIES - continued****Roots Pertaining to the Brain and Nerves**

|          |          |
|----------|----------|
| cerebro: | brain    |
| cephalo: | head     |
| cranio:  | skull    |
| neuro:   | nerve    |
| meningo: | membrane |
| spondyl: | vertebra |



| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                 |
|-------------|----------------|----------------|------------------------------------------------------------------------------|
| cerebro     | brain          | cerebrum       | cerebro - brain; "thinking center is brain"                                  |
| cranio      | skull          | craniotomy     | cranio - skull; otomy - incision into; "incision into the skull"             |
| neuro       | nerve          | neuralgia      | neuro - nerve; algia - painful; "painful nerve"                              |
| meningo     | membrane       | meningitis     | meningo - membrane; itis - inflammation; "inflammation of membrane of brain" |
| spondyl     | vertebra       | spondylitis    | spondyl - vertebra; itis - inflammation; "inflammation of the vertebra"      |

**Exercise 5.**

**Directions:** Match these roots with their meanings. Answers to this exercise are found on page 27 of Module B.

- |                 |            |
|-----------------|------------|
| ___ 1. cerebro  | A. cranio  |
| ___ 2. skull    | B. nerve   |
| ___ 3. neuro    | C. meningo |
| ___ 4. membrane | D. brain   |
| ___ 5. vertebra | E. spondyl |

## LEARNING ACTIVITIES - continued

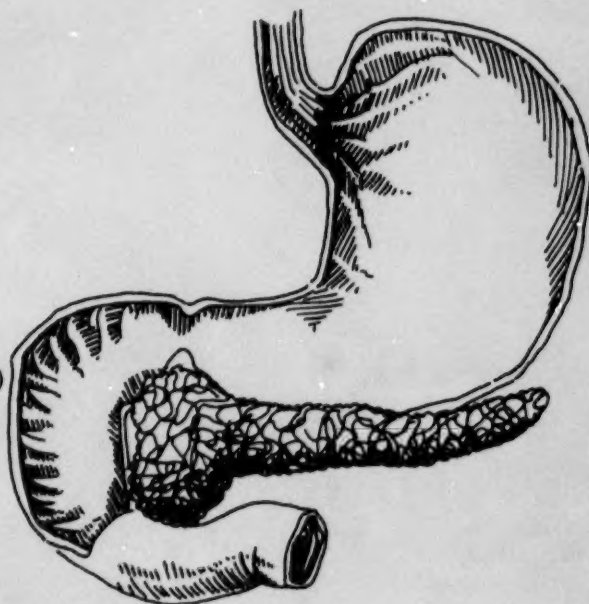
## Exercise 6.

**Directions:** Write one example for each root. Answers to this exercise can be found on page 27 of Module B.

1. cerebro \_\_\_\_\_
2. cranio \_\_\_\_\_
3. neuro \_\_\_\_\_
4. meningo \_\_\_\_\_
5. spondyl \_\_\_\_\_

## Roots Pertaining to Digestion

|         |                         |
|---------|-------------------------|
| lingua: | tongue                  |
| glossa: | tongue                  |
| stoma:  | mouth                   |
| os:     | mouth                   |
| phagia: | swallow                 |
| gastro: | stomach                 |
| colo:   | large intestine (colon) |
| chole:  | bile                    |
| hepato: | liver                   |
| laparo: | abdomen                 |
| procto: | rectum                  |



| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                    |
|-------------|----------------|----------------|-----------------------------------------------------------------|
| glossa      | tongue         | subglossal     | sub - below; glossa - tongue; "below tongue"                    |
| lingua      | tongue         | sublingual     | sub - below; lingua - tongue; "below tongue"                    |
| stoma       | mouth          | stomatitis     | stoma - mouth; itis - inflammation; "inflammation of the mouth" |



**LEARNING ACTIVITIES - continued**

| <u>ROOT</u> | <u>MEANING</u>          | <u>EXAMPLE</u>  | <u>DISCUSSION/DEFINITION</u>                                                                     |
|-------------|-------------------------|-----------------|--------------------------------------------------------------------------------------------------|
| os          | mouth                   | per os          | per - by way of; os - mouth; "by mouth"                                                          |
| phagia      | swallow                 | dysphagia       | dys - difficulty; phagia - swallow; "difficulty in swallowing"                                   |
| gastro      | stomach                 | gastrectomy     | gastro - stomach; ectomy - removal; "removal of the stomach"                                     |
| colo        | large intestine (colon) | colostomy       | colo - colon; ostomy - opening into; "opening into large intestine"                              |
| chole       | bile (gall)             | cholecystectomy | chole - bile (gall); cyst - sac (bladder); ectomy - removal; "removal of bile sac (gallbladder)" |
| hepato      | liver                   | hepatitis       | hepato - liver; itis - inflammation; "inflammation of the liver"                                 |
| laparo      | abdomen                 | laparotomy      | laparo - abdomen; otomy - incision into; "incision into the abdomen (to explore)"                |
| procto      | rectum                  | proctoscopy     | procto - rectum; scopy - look or inspect; "inspecting the rectum with instruments"               |

**Exercise 7.**

**Directions:** Circle the correct answer. Check your answers with the preceding information.

1. The root for tongue is glossa, phagia.
2. The root for mouth is glossa, stoma.
3. The root for swallow is glossa, phagia.
4. The root for stomach is gastro, laparo.
5. The root for large intestine is colo, laparo.
6. The root for bile is colo, chole.

**LEARNING ACTIVITIES - continued**

7. The root for liver is chole, hepato.
8. The root for abdomen is laparo, colo.
9. The root for rectum is hepato, procto.
10. The root for tongue is laparo, lingua.
11. The root for mouth is glossa, os.

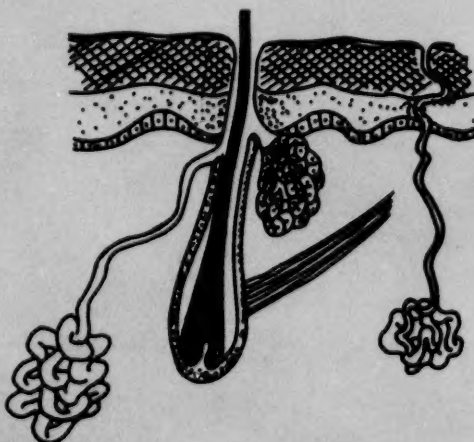
**Exercise 8.**

**Directions:** Write the correct meaning for each root in the following blanks. Answers can be found in the preceding material.

- |            |       |
|------------|-------|
| 1. glossa  | _____ |
| 2. lingua  | _____ |
| 3. stoma   | _____ |
| 4. os      | _____ |
| 5. phagia  | _____ |
| 6. gastro  | _____ |
| 7. colo    | _____ |
| 8. chole   | _____ |
| 9. hepato  | _____ |
| 10. laparo | _____ |
| 11. procto | _____ |

**Roots Pertaining to the Skin**

|            |         |
|------------|---------|
| pruritus:  | itch    |
| sebum:     | oil     |
| myco:      | fungus  |
| decubitus: | bedsore |
| nevus:     | mole    |
| derm:      | skin    |



**LEARNING ACTIVITIES - continued****Roots Pertaining to the Ear**

oto: ear  
 tympano: eardrum

**Roots Pertaining to the Eye**

oculus: eye  
 blepharo: eyelid



| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u>  | <u>DISCUSSION/DEFINITION</u>                                 |
|-------------|----------------|-----------------|--------------------------------------------------------------|
| derm        | skin           | dermatitis      | derm - skin; itis - inflammation; "inflammation of the skin" |
| sebum       | oil            | sebaceous       | sebum - oil; ous - containing; "oil containing"              |
| myco        | fungus         | mycology        | myco - fungus; ology - study of; "study of fungus"           |
| decubitus   | bedsore        | decubitus ulcer | "bedsore"                                                    |
| nevus       | mole           | nevus           | "mole"                                                       |
| oto         | ear            | otitis          | oto - ear; itis - inflammation; "inflamed ear"               |
| tympano     | eardrum        | tympanitis      | tympano - eardrum; itis - inflammation; "inflamed eardrum"   |
| oculus      | eye            | oculus dexter   | oculus - eye; dexter -right; "right eye"                     |
| blepharo    | eyelid         | blepharitis     | blepharo - eyelid; itis - inflammation; "inflamed eyelid"    |

## LEARNING ACTIVITIES - continued

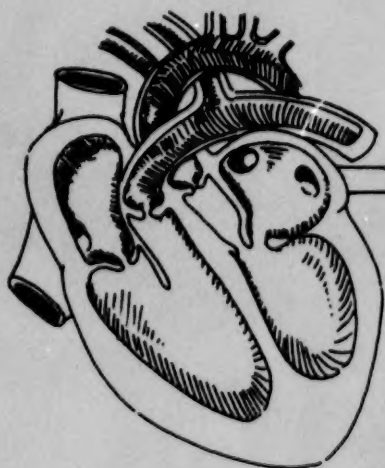
## Exercise 9.

**Directions:** Match the following roots with their meanings. Answers to this exercise can be found on page 28 of Module B.

- |                  |            |
|------------------|------------|
| ___ 1. derm      | A. ear     |
| ___ 2. sebum     | B. skin    |
| ___ 3. myco      | C. oil     |
| ___ 4. decubitus | D. fungus  |
| ___ 5. nevus     | E. eyelid  |
| ___ 6. oto       | F. bedsore |
| ___ 7. tympano   | G. mole    |
| ___ 8. oculus    | H. eardrum |
| ___ 9. blepharo  | I. eye     |
| ___ 10. psora    | J. itch    |

## Roots Pertaining to the Blood and Blood Vessels

|           |          |
|-----------|----------|
| cardio:   | heart    |
| hemo:     | blood    |
| angio:    | vessel   |
| phlebo:   | vein     |
| thrombus: | clot     |
| brady:    | slow     |
| tachy:    | fast     |
| penia:    | decrease |
| erythro:  | red      |
| leuko:    | white    |
| splen:    | spleen   |



**LEARNING ACTIVITIES - continued**

| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u>   | <u>DISCUSSION/DEFINITION</u>                                                   |
|-------------|----------------|------------------|--------------------------------------------------------------------------------|
| cardio      | heart          | myocardium       | myo - muscle; cardium - heart; "heart muscle"                                  |
| hemo        | blood          | hemogram         | hemo - blood; gram - picture; "blood picture (report of blood test)"           |
| angio       | vessel         | angiogram        | angio - vessel; gram - picture; "picture of blood vessel (x-ray)"              |
| phlebo      | vein           | phlebotomy       | phlebo - vein; otomy - incision into; "incision into the vein"                 |
| thrombus    | clot           | thrombophlebitis | thrombus - clot; phlebo - vein; itis - inflammation; "inflamed vein with clot" |
| brady       | slow           | bradycardia      | brady - slow; cardia - heart; "slow heart (pulse)"                             |
| tachy       | rapid,<br>fast | tachycardia      | tachy - fast; cardia - heart; "fast heart (pulse)"                             |
| penia       | decrease       | leukopenia       | leuko - white; penia - decrease; "decrease in white blood cells"               |
| erythro     | red            | erythrocyte      | erythro - red; cyte - cell; "red cell (blood)"                                 |
| leuko       | white          | leukocyte        | leuko - white; cyte - cell; "white cell (blood)"                               |
| splen       | spleen         | splenectomy      | splen - spleen; ectomy - removal; "removal of spleen"                          |



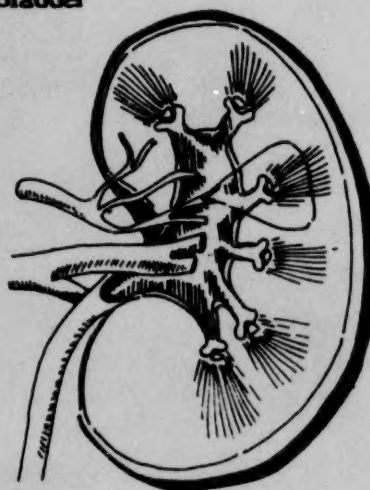
**LEARNING ACTIVITIES - continued****Exercise 10.**

**Directions:** Complete the exercise by writing the correct meaning and an example for each root in the proper column. Check your answers with the preceding information.

| <u>TERM</u> | <u>MEANING</u> | <u>EXAMPLE</u> |
|-------------|----------------|----------------|
| cardio      | _____          | _____          |
| hemo        | _____          | _____          |
| angio       | _____          | _____          |
| phlebo      | _____          | _____          |
| thrombus    | _____          | _____          |
| brady       | _____          | _____          |
| tachy       | _____          | _____          |
| penia       | _____          | _____          |
| erythro     | _____          | _____          |
| leuko       | _____          | _____          |
| splen       | _____          | _____          |

**Roots Pertaining to the Kidney and Urinary Bladder**

|           |               |
|-----------|---------------|
| nephro:   | kidney        |
| ren:      | kidney        |
| lith:     | stone         |
| calculus: | stone         |
| vesica:   | bladder       |
| cyst:     | bladder       |
| pyelo:    | kidney pelvis |



**LEARNING ACTIVITIES - continued****Roots Pertaining to Sensations**

cryo: cold

helio: sun

algesia: pain

**Roots Pertaining to General Information**

glyco: sugar

onco: tumor

carcino: cancer

pyo: pus

adeno: gland

lipid: fat

| <u>ROOT</u> | <u>MEANING</u>   | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                                                   |
|-------------|------------------|----------------|----------------------------------------------------------------------------------------------------------------|
| nephro      | kidney           | nephrectomy    | nephro - kidney; ectomy - removal; "removal of kidney"                                                         |
| ren         | kidney           | renal calculus | renal - kidney; calculus - stone; "kidney stone"                                                               |
| lith        | stone            | lithotomy      | lith - stone; otomy - incision into; "incision into for removal of stone"                                      |
| calculus    | stone            | renal calculus | renal - kidney; calculus - stone; "kidney stone"                                                               |
| vesica      | bladder          | vesicotomy     | vesica - bladder; otomy, incision into; "incision into bladder"                                                |
| cyst        | bladder          | cystectomy     | cyst - bladder; ectomy - removal; "removal of bladder"                                                         |
| pyelo       | pelvis of kidney | pyelolithotomy | pyelo - kidney pelvis; lith - stone; otomy - incision into; "incision into kidney pelvis for removal of stone" |

## LEARNING ACTIVITIES - continued

| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                   |
|-------------|----------------|----------------|--------------------------------------------------------------------------------|
| cryo        | cold           | cryometer      | cryo - cold; meter - measure; "instrument for measuring very low temperatures" |
| helio       | sun            | heliotherapy   | helio - sun; therapy - treatment; "sun treatment"                              |
| algesia     | pain           | analgesia      | an - without; algesia - pain; "without pain"                                   |
| glyco       | sugar          | glycosuria     | glyco - sugar; uria - urine; "sugar in urine"                                  |
| onco        | tumor          | oncology       | onco - tumor; ology - study of; "study of tumors"                              |
| carcino     | cancer         | carcinogenic   | carcino - cancer; genic - producing; "cancer producing"                        |
| pyo         | pus            | pyuria         | pyo - pus; uria - urine; "pus in urine"                                        |
| adeno       | gland          | adenoma        | adeno - gland; oma - tumor; "tumor of gland"                                   |
| lipid       | fat            | lipoma         | lip - fat; oma - tumor; "tumor of fat"                                         |

**LEARNING ACTIVITIES - continued****Exercise 11.**

**Directions:** Complete the exercise by writing the correct meaning and an example for each root in the proper column. Answers can be found in the preceding information.

| <u>TERM</u> | <u>MEANING</u> | <u>EXAMPLE</u> |
|-------------|----------------|----------------|
| nephro      | _____          | _____          |
| lith        | _____          | _____          |
| cyst        | _____          | _____          |
| pyelo       | _____          | _____          |
| cryo        | _____          | _____          |
| helio       | _____          | _____          |
| algesia     | _____          | _____          |
| glyco       | _____          | _____          |
| onco        | _____          | _____          |
| carcino     | _____          | _____          |
| pyo         | _____          | _____          |
| adeno       | _____          | _____          |
| lipid       | _____          | _____          |
| ren         | _____          | _____          |
| calculus    | _____          | _____          |

**Roots Pertaining to the Female and the Male Reproductive Systems**

|           |                |
|-----------|----------------|
| colpo:    | vagina         |
| salpingo: | fallopian tube |
| orchido:  | testicle       |
| cervix:   | neck of uterus |
| hyster:   | uterus (womb)  |

**LEARNING ACTIVITIES - continued****Roots Pertaining to the Female and the Male Reproductive Systems (continued)**

mast: breast

mamma: breast

vas: vessel or duct

| <u>ROOT</u> | <u>MEANING</u> | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                             |
|-------------|----------------|----------------|--------------------------------------------------------------------------|
| colpo       | vagina         | colporrhaphy   | colpo - vagina; rhapsy - suture (repair); "repair of vagina"             |
| orchido     | testicle       | orchiectomy    | orchi - testicle; ectomy - removal of; "surgical excision of a testicle" |
| cervix      | neck of uterus | cervicitis     | cervix - neck of uterus; itis - inflammation; "inflamed cervix"          |
| salpingo    | fallopian tube | salpingectomy  | salpingo - fallopian tube; ectomy - removal; "removal of fallopian tube" |
| hystero     | uterus (womb)  | hysterectomy   | hystero - uterus; ectomy - removal; "removal of uterus"                  |
| mast        | breast         | mastectomy     | mast - breast; ectomy - removal; "removal of breast"                     |
| mamma       | breast         | mammography    | mamma - breast; graph - visual record; "visual record of breast (x-ray)" |
| vas         | vessel or duct | vas deferens   | "excretory duct of the testes"                                           |



**LEARNING ACTIVITIES - continued****Exercise 12.**

**Directions:** Match the following roots with their meanings. Answers to this exercise are found on page 28 of Module B.

- |                 |                   |
|-----------------|-------------------|
| ___ 1. colpo    | A. uterus         |
| ___ 2. orchido  | B. fallopian tube |
| ___ 3. salpingo | C. vagina         |
| ___ 4. hystero  | D. breast         |
| ___ 5. mast     | E. testicle       |

**ACTIVITY #2. Prefixes**

**Directions:** Read the following information about prefixes and complete the exercises.

A prefix is defined as a syllable or phrase which is placed at the beginning of the root in order to modify or change the meaning of that root.

The prefixes which follow are listed in alphabetical order.

|         |                    |         |                     |
|---------|--------------------|---------|---------------------|
| a:      | without, not       | hemi:   | half                |
| ab:     | from, away from    | hyper:  | above, excessive    |
| ad:     | to, toward, near   | hypo:   | under, below        |
| an:     | without, not       | inter:  | between             |
| ante:   | before             | intra:  | inside              |
| anti:   | against            | peri:   | around, about       |
| bi:     | two                | pre:    | before, in front of |
| con:    | with, together     | pro:    | before, in front of |
| contra: | against, opposite  | quadri: | four                |
| dys:    | painful, difficult | retro:  | behind, backward    |
| ecto:   | outside            | semi:   | half                |
| endo:   | within, inside     | sub:    | under, below        |
| eu:     | normal             | supra:  | above, beyond       |
| epi:    | above, upon        | trans:  | across, through     |
| ex:     | out, away from     | tri:    | three               |

## LEARNING ACTIVITIES - continued

| <u>PREFIX</u> | <u>MEANING</u>        | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                                                   |
|---------------|-----------------------|----------------|----------------------------------------------------------------------------------------------------------------|
| a             | without,<br>not       | apnea          | a - without; pnea -<br>breathing; "without<br>breathing"                                                       |
| ab            | from,<br>away from    | abduction      | ab - away from; ductor -<br>that which draws; "draw<br>away from (the center of<br>the body)"                  |
| ad            | to, near,<br>toward   | adduction      | ad - toward; ductor - that<br>which draws; "draw toward<br>(the center of the body)"                           |
| an            | without,<br>not       | anesthesia     | an - without; esthesia -<br>sensation; "without sensa-<br>tion"                                                |
| ante          | before                | antenatal      | ante - before; natal -birth;<br>"before birth"                                                                 |
| anti          | against               | antibiotic     | anti - against; biosis - life<br>(in this case, infection<br>causing organisms);<br>"against life (infection)" |
| bi            | two                   | bilateral      | bi - two; lateral - side;<br>"two sides"                                                                       |
| con           | with,<br>together     | congenital     | con - with; genitus - born;<br>"born with"                                                                     |
| contra        | against,<br>opposite  | contralateral  | contra - opposite; lateral -<br>side; "opposite side"                                                          |
| dys           | painful,<br>difficult | dysuria        | dys - painful; uria - urine;<br>"painful urination"                                                            |
| ecto          | outside               | ectopic        | ecto - outside; topos -<br>place; "outside of (normal)<br>place"                                               |
| endo          | within,<br>inside     | endoscopy      | endo - inside; scope -<br>examine; "examine (with<br>an instrument) inside (body<br>cavity)"                   |

**LEARNING ACTIVITIES - continued**

| <u>PREFIX</u> | <u>MEANING</u>      | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                                    |
|---------------|---------------------|----------------|-------------------------------------------------------------------------------------------------|
| eu            | normal              | eupnea         | eu - normal; pnea - breathing; "normal breathing"                                               |
| epi           | above, upon         | epigastric     | epi - above; gastrum - stomach; "above stomach"                                                 |
| ex            | out, away from      | excise         | ex - out; cise - cut; "cut out"                                                                 |
| hemi          | half                | hemiplegic     | hemi - half; plegia - stroke (paralyzed); "half (of body) paralyzed"                            |
| hyper         | above, excessive    | hypertrophy    | hyper - excessive; trophe - nourishment (size); "excessive size (of an organ not due to tumor)" |
| hypo          | under, below        | hypodermic     | hypo - below; derm - skin; "below skin"                                                         |
| inter         | between             | intercostal    | inter - between; cost - rib; "between ribs"                                                     |
| intra         | inside              | intravenous    | intra - inside; venous - pertaining to vein; "inside vein"                                      |
| peri          | around, about       | pericardial    | peri - around; cardium - heart; "around heart"                                                  |
| pre           | before, in front of | precordial     | pre - in front of; cordium - heart; "in front of the heart"                                     |
| pro           | before, in front of | prognosis      | pro - before; gnosis - a knowing; "knowing (outcome) beforehand"                                |
| quadri        | four                | quadriceps     | quadri - four; cep - head; "four heads (in this case, a muscle with four places of insertion)"  |
| retro         | behind              | retrograde     | retro - behind (backward); grade - step (move); "move backward"                                 |

**LEARNING ACTIVITIES - continued**

| <u>PREFIX</u> | <u>MEANING</u>  | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                          |
|---------------|-----------------|----------------|---------------------------------------------------------------------------------------|
| semi          | half            | semicomatose   | semi - half; comatose - coma; "half coma"                                             |
| sub           | under, below    | sublingual     | sub - under; lingua - tongue; "under tongue"                                          |
| supra         | above           | suprapubic     | supra - above; pubis - bone of pelvis; "above pubic bone"                             |
| trans         | across, through | transurethral  | trans - through; urethra - urine outlet; "through urethra"                            |
| tri           | three           | triceps        | tri - three; cep - head; "three heads (in this case, a muscle with three insertions)" |

**Exercise 1.**

**Directions:** Match the following prefixes with their meanings. Answers to this exercise can be found on page 28 of Module B.

- |                       |               |
|-----------------------|---------------|
| ___ 1. a, an          | A. to, toward |
| ___ 2. ab             | B. against    |
| ___ 3. ad             | C. before     |
| ___ 4. ante, pre, pro | D. with       |
| ___ 5. anti, contra   | E. without    |
| ___ 6. bi             | F. two        |
| ___ 7. con            | G. away from  |
| ___ 8. dys            | H. inside     |
| ___ 9. ecto           | I. painful    |
| ___ 10. endo, intra   | J. outside    |



**LEARNING ACTIVITIES - continued****Exercise 2.**

**Directions:** Complete the exercise by writing the correct meaning and an example for each prefix in the proper column. Check your own answers by referring to the previous pages.

| <u>PREFIX</u> | <u>MEANING</u> | <u>EXAMPLE</u> |
|---------------|----------------|----------------|
| eu            | _____          | _____          |
| epi           | _____          | _____          |
| ex            | _____          | _____          |
| hemi          | _____          | _____          |
| hyper         | _____          | _____          |
| hypo          | _____          | _____          |
| inter         | _____          | _____          |
| peri          | _____          | _____          |
| quadri        | _____          | _____          |
| retro         | _____          | _____          |
| semi          | _____          | _____          |
| sub           | _____          | _____          |
| supra         | _____          | _____          |
| trans         | _____          | _____          |
| tri           | _____          | _____          |

**ACTIVITY #3. Suffixes**

**Directions:** Read the following information on suffixes and complete the exercises.

A suffix is defined as a syllable or phrase which is placed at the end of a root to modify or change the meaning of that root.

The suffixes which follow are listed in alphabetical order.



**LEARNING ACTIVITIES - continued**

|           |                           |
|-----------|---------------------------|
| algia:    | pain                      |
| cele:     | protrusion                |
| centesis: | puncture                  |
| desis:    | fixation, binding         |
| ectomy:   | removal                   |
| emia:     | blood                     |
| genic:    | origin                    |
| iasis:    | condition, presence of    |
| itis:     | inflammation              |
| lysis:    | dissolving, breaking down |
| megaly:   | enlargement               |
| oma:      | tumor                     |
| osis:     | condition, disease        |
| ostomy:   | opening                   |
| otomy:    | incision into             |
| pathy:    | disease                   |
| penia:    | decrease, deficiency      |
| pexy:     | fixation, suspension      |
| plasty:   | surgical repair           |
| ptosis:   | falling, drooping         |
| rhaply:   | suture, repair by sewing  |
| scopy:    | inspection, examination   |

**LEARNING ACTIVITIES - continued**

| <u>SUFFIX</u> | <u>MEANING</u>            | <u>EXAMPLE</u>  | <u>DISCUSSION/DEFINITION</u>                                                            |
|---------------|---------------------------|-----------------|-----------------------------------------------------------------------------------------|
| algia         | pain                      | neuralgia       | neuro - nerve; algia -pain; "nerve pain"                                                |
| cele          | protrusion                | cystocele       | cyst - bladder; cele - protrusion; "protrusion of bladder (into the vagina)"            |
| centesis      | puncture                  | thoracentesis   | thorax - chest; centesis - puncture; "puncture of chest (to remove fluid)"              |
| desis         | fixation, binding         | arthrodesis     | arthro - joint; desis - fixation; "(surgical) fixation of joint"                        |
| ectomy        | removal                   | colectomy       | colo - colon; ectomy - removal; "removal of colon"                                      |
| emia          | blood                     | hyperglycemia   | hyper - excessive; glyco - sugar; emia - blood, "excessive sugar in blood"              |
| genic         | origin                    | neurogenic      | neuro - nerve; genic - origin; "originates in nerve"                                    |
| iasis         | condition, presence of    | nephrolithiasis | nephro - kidney; lith -stone; iasis - presence of; "stones present in kidney"           |
| itis          | inflammation              | cholecystitis   | chole - bile (gall); cyst - bladder; itis - inflammation; "inflammation of gallbladder" |
| lysis         | dissolving, breaking down | hemolysis       | hemo - blood; lysis - breaking down; "blood cells break down"                           |
| megaly        | enlargement               | splenomegaly    | splen - spleen; megaly - enlargement; "enlarged spleen"                                 |
| oma           | tumor                     | nephroma        | nephro - kidney; oma - tumor; "kidney tumor"                                            |

## LEARNING ACTIVITIES - continued

| <u>SUFFIX</u> | <u>MEANING</u>                 | <u>EXAMPLE</u> | <u>DISCUSSION/DEFINITION</u>                                                                                |
|---------------|--------------------------------|----------------|-------------------------------------------------------------------------------------------------------------|
| osis          | condition,<br>disease          | nephrosis      | neph - kidney; osis -<br>disease; "kidney disease"                                                          |
| ostomy        | opening                        | nephrostomy    | neph - kidney; ostomy -<br>opening (usually perma-<br>nent); "usually permanent<br>opening into the kidney" |
| otomy         | incision<br>into               | thoracotomy    | thorax - chest; otomy -<br>incision into; "incision into<br>chest"                                          |
| pathy         | disease                        | neuropathy     | neuro - nerve; pathy -<br>disease; "diseased nerve"                                                         |
| penia         | decrease,<br>deficiency        | cytopenia      | cyto - cell; penia -<br>decrease; "decrease (in<br>number) of cells"                                        |
| pexy          | fixation,<br>suspension        | orchiopexy     | orch - testis; pexy - fixa-<br>tion; "fixation of (unde-<br>scended) testis"                                |
| plasty        | surgical<br>repair             | nephroplasty   | neph - kidney; plasty -<br>surgical repair; "repair of<br>kidney"                                           |
| ptosis        | falling,<br>drooping           | blepharoptosis | blephar - eyelid; ptosis -<br>drooping; "drooping eyelid"                                                   |
| rhaphy        | suture,<br>repair by<br>sewing | herniorrhaphy  | hernia - rupture; rhaphy -<br>repair by sewing; "repair of<br>rupture (hernia) by sewing"                   |
| scopy         | inspection,<br>examination     | cystoscopy     | cyst - bladder; scopy -<br>inspection; "inspection<br>(with an instrument) of<br>bladder"                   |

**LEARNING ACTIVITIES - concluded****Exercise**

**Directions:** Fill in the following blanks with the correct information. Check your own answers by referring to the previous pages.

| <u>SUFFIX</u> | <u>SUFFIX MEANING</u> | <u>EXAMPLE</u> |
|---------------|-----------------------|----------------|
| 1. algia      | _____                 | arthralgia     |
| 2. _____      | protrusion            | _____          |
| 3. centesis   | _____                 | _____          |
| 4. desis      | _____                 | _____          |
| 5. _____      | removal of            | _____          |
| 6. _____      | _____                 | anemia         |
| 7. _____      | origin                | _____          |
| 8. iasis      | _____                 | lithiasis      |
| 9. _____      | _____                 | cystitis       |
| 10. lysis     | _____                 | _____          |
| 11. _____     | enlargement           | _____          |
| 12. _____     | _____                 | myoma          |
| 13. osis      | _____                 | _____          |
| 14. ostomy    | _____                 | colostomy      |
| 15. _____     | incision into         | _____          |
| 16. _____     | _____                 | adenopathy     |
| 17. penia     | decrease              | _____          |
| 18. _____     | _____                 | nephropexy     |
| 19. plasty    | _____                 | hernioplasty   |
| 20. _____     | drooping              | _____          |
| 21. raphy     | _____                 | _____          |
| 22. _____     | _____                 | cystoscopy     |



**ANSWERS****ACTIVITY #1****Exercise 1**

- |      |      |
|------|------|
| 1. G | 5. F |
| 2. E | 6. D |
| 3. A | 7. C |
| 4. B |      |

**Exercise 2**

- |                              |                          |
|------------------------------|--------------------------|
| 1. osteoarthritis, osteoma   | 5. pedal pulse, pedicure |
| 2. myelogenous, myelitis     | 6. arthritis, arthrotomy |
| 3. manipulation, maneuver    | 7. myositis, myocardial  |
| 4. intercostal, costophrenic |                          |

If you have given other examples, check them in your medical dictionary.

**Exercise 3**

- |      |      |
|------|------|
| 1. C | 5. F |
| 2. D | 6. G |
| 3. B | 7. A |
| 4. E |      |

**Exercise 4**

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. rhinitis, rhinoplasty      | 5. eupnea, dyspnea            |
| 2. pharyngitis, pharyngocoele | 6. pneumonitis, pneumonia     |
| 3. laryngitis, laryngoscopy   | 7. thoracotomy, thoracentesis |
| 4. tracheotomy, tracheostomy  |                               |

If you have given other examples, check them in your medical dictionary.

**Exercise 5**

- |      |      |
|------|------|
| 1. D | 4. C |
| 2. A | 5. E |
| 3. B |      |

**Exercise 6**

- |                            |                              |
|----------------------------|------------------------------|
| 1. cerebrum, cerebrospinal | 4. meningitis, meningococcus |
| 2. craniotomy, cranial     | 5. spondylitis, spondylosis  |
| 3. neuralgia, neuritis     |                              |

If you have given other examples, check them in your medical dictionary.



**ANSWERS - concluded****Exercise 9**

- |      |       |
|------|-------|
| 1. B | 6. A  |
| 2. C | 7. H  |
| 3. D | 8. I  |
| 4. F | 9. E  |
| 5. G | 10. J |

**Exercise 12**

- |      |      |
|------|------|
| 1. C | 4. A |
| 2. E | 5. D |
| 3. B |      |

**ACTIVITY #2****Exercise 1**

- |      |       |
|------|-------|
| 1. E | 6. F  |
| 2. G | 7. D  |
| 3. A | 8. I  |
| 4. C | 9. J  |
| 5. B | 10. H |

## MEDICAL TERMINOLOGY

### Module C - Commonly Used Abbreviations and Symbols



#### RATIONALE

We use many standardized written "short cuts" in nursing so that we can spend more time with the patients. You will use these symbols and abbreviations often and will be referring to them continuously throughout your career.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the meanings of commonly used nursing abbreviations and symbols.

#### LEARNING ACTIVITIES

**Directions:** All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

#### ACTIVITY. Abbreviations and Symbols

**Directions:** Learn the following abbreviations and symbols, and their meanings. If you need any further information, remember to ask for help. Abbreviations are short forms of longer words or phrases. Symbols are visual signs that also represent words.

#### General Abbreviations

| <u>Abbreviations</u> | <u>Meaning</u>                |
|----------------------|-------------------------------|
| PO                   | by mouth                      |
| NPO                  | nothing by mouth              |
| STAT                 | do it now, immediately        |
| PRN                  | whenever necessary, as needed |
| Liq.                 | liquid                        |
| Cl. liq.             | clear liquid                  |
| Reg.                 | regular                       |

**LEARNING ACTIVITIES - continued**

| <u>Abbreviation</u> | <u>Meaning</u>                        |
|---------------------|---------------------------------------|
| Wt.                 | weight                                |
| R                   | rectal                                |
| Ax.                 | axillary                              |
| Resp.               | respirations                          |
| Spec.               | specimen                              |
| C & A               | Clinitest and Acetest (urine test)    |
| F                   | Fahrenheit                            |
| C                   | centigrade (Celsius)                  |
| Cal.                | calorie                               |
| Tol.                | tolerated                             |
| Ad lib              | as desired                            |
| DC                  | discontinue                           |
| cc                  | cubic centimeter                      |
| gtt. or gtts.       | drop or drops                         |
| QS                  | quantity sufficient (for testing)     |
| QNS                 | quantity not sufficient (for testing) |
| A.M.                | morning                               |
| a.c. (A.C.)         | before meals                          |
| p.c. (P.C.)         | after meals                           |
| H.S.                | at bedtime                            |
| h                   | hour                                  |
| OOB                 | out of bed                            |
| BRP                 | bathroom privileges                   |

**LEARNING ACTIVITIES - continued**

| <u>Abbreviation</u> | <u>Meaning</u>                   |
|---------------------|----------------------------------|
| I & O               | intake and output                |
| BM                  | bowel movement                   |
| OU                  | both eyes                        |
| OD                  | right eye                        |
| OS                  | left eye                         |
| qd (QD)             | each day                         |
| bid (BID)           | twice daily                      |
| tid (TID)           | three times daily                |
| qid (QID)           | four times daily                 |
| qod (QOD)           | every other day                  |
| qh (QH)             | every hour                       |
| q2h (Q2H)           | every two hours                  |
| DNR                 | do not resuscitate               |
| SSE                 | soap suds enema                  |
| TPR                 | temperature, pulse, respirations |
| BP                  | blood pressure                   |
| FHT                 | fetal heartbeat                  |
| V.O.                | verbal order                     |
| T.O.                | telephone order                  |

**Common Lab Test Abbreviations**

| <u>Abbreviation</u> | <u>Meaning</u>       |
|---------------------|----------------------|
| CBC                 | complete blood count |
| Hgb                 | hemoglobin           |
| Hct                 | hematocrit           |
| FBS                 | fasting blood sugar  |

**LEARNING ACTIVITIES - continued**

| <u>Abbreviation</u> | <u>Meaning</u>                                                                 |
|---------------------|--------------------------------------------------------------------------------|
| GTT                 | glucose tolerance test                                                         |
| UA                  | urinalysis                                                                     |
| 2 hr. PP            | two hour post prandial (usually blood sugar, drawn 2 hours after patient eats) |
| Sp.G                | specific gravity                                                               |

**Hospital Location Abbreviations**

| <u>Abbreviation</u> | <u>Meaning</u>                         |
|---------------------|----------------------------------------|
| ER                  | emergency room                         |
| OB                  | obstetric unit                         |
| PEDS                | pediatric unit                         |
| GYN                 | gynecology unit                        |
| Neuro               | neurosurgery unit                      |
| EENT                | ear, eye, nose, throat unit            |
| LAB                 | laboratory                             |
| MICU                | medical intensive care unit            |
| SICU                | surgical intensive care unit           |
| ICU                 | intensive care unit                    |
| IT                  | inhalation therapy                     |
| PT                  | physical therapy                       |
| CS                  | central supply                         |
| OR                  | operating room                         |
| CCU                 | coronary care unit (cardiac care unit) |

**Hospital Personnel Abbreviations**

| <u>Abbreviation</u> | <u>Meaning</u>    |
|---------------------|-------------------|
| NA                  | nursing assistant |



**LEARNING ACTIVITIES - continued**

| <u>Abbreviation</u> | <u>Meaning</u>           |
|---------------------|--------------------------|
| LPN                 | licensed practical nurse |
| RN                  | registered nurse         |
| MD                  | medical doctor           |
| PT                  | physical therapist       |
| DO                  | doctor of osteopathy     |

**Diagnostic Abbreviations**

| <u>Abbreviation</u> | <u>Meaning</u>                           |
|---------------------|------------------------------------------|
| ASHD                | arteriosclerotic heart disease           |
| CHF                 | congestive heart failure                 |
| MI                  | myocardial infarction (heart attack)     |
| CVA                 | cerebrovascular accident (stroke)        |
| FUO                 | fever of undetermined origin             |
| URI                 | upper respiratory infection              |
| IVP                 | intravenous pyelogram x-ray              |
| BAE                 | barium enema x-ray                       |
| GI                  | gastrointestinal tract x-ray             |
| GB                  | gallbladder x-ray                        |
| IPPB                | intermittent positive pressure breathing |
| EEG                 | electroencephalogram (brain studies)     |
| EKG                 | electrocardiogram (heart tracings)       |
| EMG                 | electromyogram (muscle tracings)         |

**Symbols**

| <u>Symbol</u> | <u>Meaning</u> | <u>Symbol</u> | <u>Meaning</u> |
|---------------|----------------|---------------|----------------|
| @             | at             | K             | potassium      |
| c̄            | with           | Cl            | chloride       |

## LEARNING ACTIVITIES - continued

| <u>Symbol</u> | <u>Meaning</u> | <u>Symbol</u>    | <u>Meaning</u> |
|---------------|----------------|------------------|----------------|
| $\bar{s}$     | without        | Na               | sodium         |
| $\bar{p}$     | after          | H <sub>2</sub> O | water          |
| >             | increases      | O <sub>2</sub>   | oxygen         |
| <             | decreases      | CO <sub>2</sub>  | carbon dioxide |
| ↑             | higher         | 3                | dram           |
| ↓             | lower          | 3                | ounce          |

**Directions:** Write the correct meanings for the abbreviations and symbols below. Check your answers with the preceding information.

|       |       |           |       |
|-------|-------|-----------|-------|
| PO    | _____ | PT        | _____ |
| NPO   | _____ | CS        | _____ |
| STAT  | _____ | OR        | _____ |
| C & A | _____ | CBC       | _____ |
| A.M.  | _____ | Hgb       | _____ |
| OOB   | _____ | Hct       | _____ |
| BRP   | _____ | FBS       | _____ |
| I & O | _____ | PP        | _____ |
| BM    | _____ | UA        | _____ |
| qh    | _____ | MI        | _____ |
| SSE   | _____ | CVA       | _____ |
| TPR   | _____ | IVP       | _____ |
| BP    | _____ | IPPB      | _____ |
| NA    | _____ | EKG       | _____ |
| LPN   | _____ | $\bar{c}$ | _____ |
| RN    | _____ | $\bar{s}$ | _____ |
| MD    | _____ | ↑         | _____ |

## LEARNING ACTIVITIES - concluded

|                  |       |                 |       |
|------------------|-------|-----------------|-------|
| ER               | _____ | ↓               | _____ |
| ICU              | _____ | O <sub>2</sub>  | _____ |
| H <sub>2</sub> O | _____ | CO <sub>2</sub> | _____ |

**Directions:** Write the correct abbreviation or symbol for the following words or phrases. Check your answers with the preceding information.

|                                       |                                                |
|---------------------------------------|------------------------------------------------|
| by mouth _____                        | hemoglobin _____                               |
| nothing by mouth _____                | hematocrit _____                               |
| immediately _____                     | fasting blood sugar _____                      |
| Clinitest and Acetest _____           | post prandial _____                            |
| morning _____                         | urinalysis _____                               |
| out of bed _____                      | myocardial infarction _____                    |
| bathroom privileges _____             | cerebrovascular accident _____                 |
| soap suds enema _____                 | intravenous pyelogram _____                    |
| temperature, pulse, respiration _____ | intermittent positive pressure breathing _____ |
| blood pressure _____                  | electrocardiogram _____                        |
| nursing assistant _____               | with _____                                     |
| licensed practical nurse _____        | without _____                                  |
| registered nurse _____                | higher _____                                   |
| medical doctor _____                  | lower _____                                    |
| emergency room _____                  | water _____                                    |
| intensive care unit _____             | oxygen _____                                   |
| physical therapy _____                | carbon dioxide _____                           |
| central supply _____                  | complete blood count _____                     |
| operating room _____                  |                                                |

## MEDICAL TERMINOLOGY

### Module D - Surgical and Diagnostic Terms

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#### RATIONALE

In the first three modules you learned how to record observations, how to originate words, and how to abbreviate words. Now you will learn how to break down and define words using the information you have learned in the preceding modules.

#### PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the definitions of surgical and diagnostic terms.

#### LEARNING ACTIVITIES

**Directions:** All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

#### ACTIVITY. Defining Surgical and Diagnostic Terms

**Directions:** Read the following information and complete the exercise. In this activity, you will tie together everything you have learned about roots, prefixes, and suffixes. You will look at a word; separate that word into root, prefix and/or suffix; and then define that word using the definitions of its parts.

The following chart is an illustration of this procedure.



**Examples:**

| <u>WORD</u>     | <u>ROOT</u>   | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u>                                                          |
|-----------------|---------------|-------------------------|-----------------------------------------------------------------------------------------|
| appendectomy    | append        | -ectomy                 | append - appendix; ectomy - removal of; "removal of the appendix"                       |
| cholecystectomy | chole<br>cyst | -ectomy                 | chole - bile (gall); cyst - bladder; ectomy - removal of; "removal of the gall-bladder" |
| incise          | cise          | in-                     | in - into; cise - to cut; "to cut into"                                                 |

**Surgical and Diagnostic Terms Related to the Digestive System**

**Directions:** Define the following terms using the procedure illustrated above. If you have any problems use a medical dictionary or see your instructor.

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u>   |
|-------------|-------------|-------------------------|----------------------------------|
| colostomy   | _____       | _____                   | _____<br>_____<br>_____          |
| laparotomy  | _____       | _____                   | _____<br>_____<br>_____<br>_____ |
| gastrectomy | _____       | _____                   | _____<br>_____<br>_____          |



WORD

ROOT

PREFIX OR SUFFIX

MEANING OF WORD OR TERM

sublingual

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

gastroscopy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

esophagoscopy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

pneumonectomy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

thoracotomy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

tonsillectomy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

LEARNING ACTIVITIES - continued

| <u>WORD</u>  | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|--------------|-------------|-------------------------|--------------------------------|
| bronchoscopy | _____       | _____                   | _____<br>_____<br>_____        |
| laryngoscopy | _____       | _____                   | _____<br>_____<br>_____        |

Surgical Terms and Procedures Related to Muscle, Skin, and Bone

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| mastectomy  | _____       | _____                   | _____<br>_____<br>_____        |
| arthrotomy  | _____       | _____                   | _____<br>_____<br>_____        |
| osteotomy   | _____       | _____                   | _____<br>_____<br>_____        |

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| dermatitis  | _____       | _____                   | _____<br>_____<br>_____        |

Surgical Terms and Procedures Related to the Reproductive System

| <u>WORD</u>   | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|---------------|-------------|-------------------------|--------------------------------|
| hysterectomy  | _____       | _____                   | _____<br>_____<br>_____        |
| colporrhaphy  | _____       | _____                   | _____<br>_____<br>_____        |
| prostatectomy | _____       | _____                   | _____<br>_____<br>_____        |
| orchietomy    | _____       | _____                   | _____<br>_____<br>_____        |

| <u>WORD</u>   | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|---------------|-------------|-------------------------|--------------------------------|
| salpingectomy | _____       | _____                   | _____<br>_____<br>_____        |
| vasectomy     | _____       | _____                   | _____<br>_____<br>_____        |

Surgical and Diagnostic Terms and Procedures Related to the Circulatory System

| <u>WORD</u>    | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|----------------|-------------|-------------------------|--------------------------------|
| embolectomy    | _____       | _____                   | _____<br>_____<br>_____        |
| endarterectomy | _____       | _____                   | _____<br>_____<br>_____        |
| splenectomy    | _____       | _____                   | _____<br>_____<br>_____        |

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| valvotomy   | _____       | _____                   | _____<br>_____<br>_____        |
| aortogram   | _____       | _____                   | _____<br>_____<br>_____        |
| arteriogram | _____       | _____                   | _____<br>_____<br>_____        |

Surgical and Diagnostic Terms and Procedures Related to the Nervous System

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| craniotomy  | _____       | _____                   | _____<br>_____<br>_____        |
| laminectomy | _____       | _____                   | _____<br>_____<br>_____        |



| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| myelogram   | _____       | _____                   | _____<br>_____<br>_____        |
| meningitis  | _____       | _____                   | _____<br>_____<br>_____        |

Surgical Term or Procedure Related to the Endocrine System

| <u>WORD</u>   | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|---------------|-------------|-------------------------|--------------------------------|
| thyroidectomy | _____       | _____                   | _____<br>_____<br>_____        |

Surgical and Diagnostic Terms and Procedures Related to the Eyes

| <u>WORD</u>  | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|--------------|-------------|-------------------------|--------------------------------|
| blepharedema | _____       | _____                   | _____<br>_____<br>_____        |

| <u>WORD</u>         | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u>   |
|---------------------|-------------|-------------------------|----------------------------------|
| cataract extraction | _____       | _____                   | _____<br>_____<br>_____<br>_____ |
| ophthalmoscopy      | _____       | _____                   | _____<br>_____<br>_____<br>_____ |

Surgical and Diagnostic Terms and Procedures Related to the Kidney and Urinary Tract

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u>   |
|-------------|-------------|-------------------------|----------------------------------|
| nephrectomy | _____       | _____                   | _____<br>_____<br>_____<br>_____ |
| cystectomy  | _____       | _____                   | _____<br>_____<br>_____<br>_____ |
| cystotomy   | _____       | _____                   | _____<br>_____<br>_____<br>_____ |

| <u>WORD</u>      | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|------------------|-------------|-------------------------|--------------------------------|
| ureterolithotomy | _____       | _____                   | _____<br>_____<br>_____        |
| ureterostomy     | _____       | _____                   | _____<br>_____<br>_____        |
| nephroscopy      | _____       | _____                   | _____<br>_____<br>_____        |
| cystoscopy       | _____       | _____                   | _____<br>_____<br>_____        |

Surgical and Diagnostic Terms and Procedures Related to the Ear and Nose

| <u>WORD</u> | <u>ROOT</u> | <u>PREFIX OR SUFFIX</u> | <u>MEANING OF WORD OR TERM</u> |
|-------------|-------------|-------------------------|--------------------------------|
| otoplasty   | _____       | _____                   | _____<br>_____<br>_____        |

WORD

ROOT

PREFIX OR SUFFIX

MEANING OF WORD OR TERM

mastoidectomy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

nasal septoplasty

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

LEARNING ACTIVITIES - concluded

**POST TEST**

**Module A**



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. **DO NOT WRITE ON THIS TEST.**

1. Tall or short describes a patient's:
  - a. size
  - b. shape
  - c. posture
  - d. all of the above
2. Thin or average build describes a patient's:
  - a. size
  - b. shape
  - c. posture
  - d. all of the above
3. Stooped or erect describes a patient's:
  - a. size
  - b. shape
  - c. posture
  - d. all of the above
4. Skin that is reddened with fever is described as:
  - a. normal
  - b. mottled
  - c. cyanotic
  - d. flushed
5. Skin that is blotched or patched is described as:
  - a. normal
  - b. mottled
  - c. cyanotic
  - d. flushed
6. Skin that has a rash or hives is described as:
  - a. abnormal
  - b. normal
  - c. pallored
  - d. cyanotic



**POST TEST - continued**

7. Unusual paleness or the loss of red or pink tones describes skin that is:
- abnormal
  - normal
  - pallored
  - cyanotic
8. The skin of a dark-complexioned patient that is grey looking around the mouth and over the cheeks might be described as:
- mottled
  - flushed
  - pallored
  - cyanotic
9. Normal eyes are described as:
- flat looking
  - bloodshot
  - bright
  - all of the above
10. Abnormal eyes are described as:
- flat looking
  - swollen
  - bloodshot
  - all of the above
11. Normal \_\_\_\_\_ are of the same size and change size when exposed to flashes of light.
- pupils
  - eyelids
  - eyes
  - all of the above
12. Ptosis describes abnormal:
- pupils
  - eyelids
  - eyes
  - all of the above
13. Reddened sclerae describes abnormal:
- pupils
  - eyelids
  - eyes
  - all of the above

## POST TEST - continued

14. If my breathing is normal, it is described as:
- a. Cheyne-Stokes
  - b. orthopneic
  - c. abnormal
  - d. normal
15. Dyspnea describes breathing that is:
- a. very rapid
  - b. painful
  - c. wheezing
  - d. noisy
16. Hyperpnea describes breathing that is:
- a. very rapid
  - b. painful
  - c. wheezing
  - d. noisy
17. Coughing up sputum describes a/an:
- a. persistent cough
  - b. intermittent cough
  - c. nonproductive cough
  - d. productive cough
18. Priscilla Patient coughs up stringy, thick sputum. The nursing observation that best describes this is:
- a. persistent
  - b. intermittent
  - c. tenacious
  - d. blood-tinged
19. How mentally alert Priscilla Patient is describes her:
- a. emotional response
  - b. level of consciousness
  - c. neither of the above
  - d. both of the above
20. If I am able to speak and to carry on a conversation, I may be described as:
- a. comatose
  - b. restless
  - c. stuporous
  - d. alert

## POST TEST - continued

21. If I do not respond to anything, I may be described as:
- a. comatose
  - b. restless
  - c. stuporous
  - d. alert
22. If I can be aroused but only respond to pain, I may be described as:
- a. comatose
  - b. restless
  - c. stuporous
  - d. alert
23. My appetite is fair if I eat:
- a. 0-20% of what is served
  - b. 85-100% of what is served
  - c. 50-80% of what is served
  - d. 20-45% of what is served
24. My appetite is good if I eat:
- a. 0-20% of what is served
  - b. 85-100% of what is served
  - c. 50-80% of what is served
  - d. 20-45% of what is served
25. My appetite is poor if I eat:
- a. 0-20% of what is served
  - b. 85-100% of what is served
  - c. 50-80% of what is served
  - d. 20-45% of what is served
26. Priscilla Patient is babbling without making sense. Her speech is described as:
- a. coherent
  - b. incoherent
  - c. disoriented
  - d. aphasic
27. A patient who responds to questions about what day it is with inappropriate answers is described as:
- a. coherent
  - b. incoherent
  - c. disoriented
  - d. aphasic

## POST TEST - continued

28. A patient who is unable to speak is described as:
- a. coherent
  - b. incoherent
  - c. disoriented
  - d. aphasic
29. Tachycardia describes a pulse of:
- a. less than 60 for adults
  - b. less than 100 for adults
  - c. more than 60 for adults
  - d. more than 100 for adults
30. Bradycardia describes a pulse that is:
- a. less than 60 for adults
  - b. less than 100 for adults
  - c. more than 60 for adults
  - d. more than 100 for adults
31. A patient's pulse that is thready, feeble, and irregular is best described as:
- a. abnormal
  - b. normal
  - c. bounding
  - d. rhythmic
32. A patient's pulse that pounds against your fingertips is best described as:
- a. abnormal
  - b. normal
  - c. bounding
  - d. rhythmic
33. If I burn my hand with hot grease, the pain is described as:
- a. transient
  - b. severe
  - c. generalized
  - d. radiating
34. If I have a cutting, stabbing pain, it is described as:
- a. transient
  - b. chronic
  - c. radiating
  - d. sharp

## POST TEST - continued

35. If I have a pain that begins in my chest and goes down my arm it is described as:
- a. transient
  - b. chronic
  - c. radiating
  - d. sharp
36. If I ache all over, my pain is described as:
- a. generalized
  - b. chronic
  - c. intermittent
  - d. sharp
37. If I have a pain that doesn't go away, it is described as:
- a. generalized
  - b. chronic
  - c. intermittent
  - d. sharp
38. If I run and get a "stitch" in my side, and it quits when I stop running, the pain is described as:
- a. radiating
  - b. transient
  - c. intermittent
  - d. chronic
39. Labor pains are described as:
- a. radiating
  - b. transient
  - c. intermittent
  - d. chronic
40. Priscilla Patient comes into the doctor's office with a towel around her hand. You remove the towel and find a large area wet with blood. Blood is gushing from a cut on her hand. Bleeding would be described as:
- a. moderate
  - b. scant
  - c. profuse
  - d. oozing



## POST TEST - continued

41. Priscilla Patient comes back to the doctor's office 3 days later to have her bandage changed. She has wet serosanguineous drainage on her bandage about the size of a penny. Her drainage would be described as:
- a. moderate
  - b. scant
  - c. profuse
  - d. oozing
42. Now, let's describe Priscilla's dressing when she came to have it changed. Read question #41 again and describe her dressing:
- a. clean
  - b. blood stained
  - c. dry
  - d. saturated
43. A dry dressing may also be:
- a. clean
  - b. dirty
  - c. neither a nor b
  - d. both a and b
44. Voiding is another term for:
- a. oliguria
  - b. polyuria
  - c. urination
  - d. dysuria
45. Painful micturition is described as:
- a. oliguria
  - b. polyuria
  - c. urination
  - d. dysuria
46. A patient who is able to control the discharge of urine is described as:
- a. incontinent
  - b. continent
  - c. anuric
  - d. pyuric
47. A normal stool is described as:
- a. brown and soft
  - b. brown and formed
  - c. neither a nor b
  - d. both a and b

**POST TEST - concluded**

48. Hematuria describes:

- a. pus in urine
- b. blood in urine
- c. acid in urine
- d. yellow urine

49. Priscilla Patient's abdomen is board-like to the touch. It is described as:

- a. protruding
- b. flacid
- c. flat
- d. rigid

50. I've had a really good day. It looks like I've passed this test, the kids are all well, the job market has improved, the garden is producing like mad, and I've got steak for supper. Relaxed and smiling describe my:

- a. level of consciousness
- b. emotional response
- c. both a and b
- d. neither a or b

## ANSWERS TO POST TEST

### Module A

---



- |       |       |       |
|-------|-------|-------|
| 1. a  | 25. d | 49. d |
| 2. b  | 26. d | 50. b |
| 3. c  | 27. c |       |
| 4. d  | 28. d |       |
| 5. b  | 29. d |       |
| 6. a  | 30. a |       |
| 7. c  | 31. a |       |
| 8. d  | 32. c |       |
| 9. c  | 33. b |       |
| 10. d | 34. d |       |
| 11. a | 35. c |       |
| 12. b | 36. a |       |
| 13. c | 37. b |       |
| 14. d | 38. b |       |
| 15. b | 39. c |       |
| 16. a | 40. c |       |
| 17. d | 41. b |       |
| 18. c | 42. b |       |
| 19. b | 43. d |       |
| 20. d | 44. c |       |
| 21. a | 45. d |       |
| 22. c | 46. b |       |
| 23. c | 47. d |       |
| 24. b | 48. b |       |

## POST TEST

### Module B



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

#### Roots

1. Osteo means:
  - a. hand
  - b. rib
  - c. bone
  - d. arm
2. A disease of the bone is:
  - a. osteoarthritis
  - b. myelogenous
  - c. myositis
  - d. leukemia
3. Myelos means:
  - a. intercostal space
  - b. manipulation
  - c. marrow
  - d. muscle
4. Arthro means:
  - a. muscle
  - b. marrow
  - c. bone
  - d. joint
5. An intercostal space is the space between two:
  - a. vertebrae
  - b. joints
  - c. ribs
  - d. fingers

## POST TEST - continued

6. Arthritis involves:

- a. muscle
- b. joint
- c. nerve
- d. fat

7. Myo means:

- a. muscle
- b. bone
- c. nerve
- d. blood

8. Rhino means:

- a. muscle
- b. bone
- c. blood
- d. nose

9. Pharynx means:

- a. voice box
- b. throat
- c. lung
- d. bone

10. Larynx means:

- a. voice box
- b. throat
- c. lung
- d. bone

11. Cranio means:

- a. head
- b. brain
- c. skull
- d. nerve

12. Neuro means:

- a. head
- b. nerve
- c. skull
- d. brain



**POST TEST - continued**

13. Stoma means:
- a. tongue
  - b. mouth
  - c. swallow
  - d. stomach
14. Gastro means:
- a. tongue
  - b. mouth
  - c. stomach
  - d. liver
15. Hepato means:
- a. tongue
  - b. mouth
  - c. stomach
  - d. liver
16. Derm means:
- a. itch
  - b. sweat
  - c. skin
  - d. mole
17. Oto means:
- a. ear
  - b. eye
  - c. nose
  - d. skin
18. Oculus means:
- a. ear
  - b. eye
  - c. nose
  - d. skin
19. Cardio means:
- a. blood
  - b. vessel
  - c. heart
  - d. clot

## POST TEST - continued

20. Hemo means:
- a. blood
  - b. vessel
  - c. heart
  - d. clot
21. Thrombus means:
- a. blood
  - b. vessel
  - c. heart
  - d. clot
22. Brady means:
- a. fast
  - b. slow
  - c. heart
  - d. blood
23. Tachy means:
- a. fast
  - b. slow
  - c. heart
  - d. blood
24. Erythro means:
- a. cell
  - b. blood
  - c. red
  - d. white
25. Nephro means:
- a. liver
  - b. stone
  - c. bladder
  - d. kidney
26. Algesia means:
- a. heart
  - b. cold
  - c. pain
  - d. warm

## POST TEST - continued

27. Onco means:
- a. tumor
  - b. tissue
  - c. blood
  - d. gland
28. Carcino means:
- a. tumor
  - b. cancer
  - c. pain
  - d. warm
29. Hyster means:
- a. uterus
  - b. vagina
  - c. bladder
  - d. breast
30. Mast means:
- a. cervix
  - b. vagina
  - c. uterus
  - d. breast
31. Myositis is a disease of the:
- a. bone
  - b. muscle
  - c. nerve
  - d. blood
32. Rhinitis affects the:
- a. muscle
  - b. bone
  - c. nose
  - d. blood
33. Pharyngitis affects the:
- a. nose
  - b. lung
  - c. throat
  - d. diaphragm

**POST TEST - continued**

34. Inflammation of the voice box is:
- a. rhinitis
  - b. pharyngitis
  - c. trachitis
  - d. laryngitis
35. Surgery on the skull is called:
- a. craniotomy
  - b. laminectomy
  - c. chordotomy
  - d. rhizotomy
36. Stomatitis is a condition of the:
- a. throat
  - b. vocal cord
  - c. mouth
  - d. gum
37. Removal of the stomach is called:
- a. gastrectomy
  - b. laminectomy
  - c. colectomy
  - d. cholecystectomy
38. Hepatitis affects the:
- a. stomach
  - b. mouth
  - c. liver
  - d. gallbladder
39. Dermatitis affects the:
- a. skin
  - b. mouth
  - c. liver
  - d. heart
40. Otitis affect the:
- a. ear
  - b. eye
  - c. nose
  - d. skin

## POST TEST - continued

41. Oculis dexter means:
- a. left eye
  - b. right eye
  - c. ophthalmology
  - d. ophthalmologist
42. Myocardium is:
- a. heart muscle
  - b. fatty tissue
  - c. interstitial tissue
  - d. none of the above
43. Hemogram means:
- a. dissolving of blood
  - b. blood volume
  - c. iron in blood
  - d. report of blood test
44. Thrombophlebitis affects the:
- a. arteries
  - b. capillaries
  - c. veins
  - d. none of the above
45. A condition that means a slow pulse rate is:
- a. myocarditis
  - b. endocarditis
  - c. bradycardia
  - d. tachycardia
46. A condition that means a fast pulse rate is:
- a. myocarditis
  - b. endocarditis
  - c. bradycardia
  - d. tachycardia
47. An erythrocyte is a:
- a. white blood cell
  - b. red blood cell
  - c. clotting cell
  - d. none of the above



**POST TEST - continued**

48. Nephrectomy means removal of:
- a. stone
  - b. bladder
  - c. ureter
  - d. kidney
49. Oncology is the study of:
- a. tumors
  - b. tissues
  - c. blood
  - d. glands
50. Hysterectomy is removal of the:
- a. uterus
  - b. vagina
  - c. cervix
  - d. breast
51. Mastectomy is the removal of the:
- a. uterus
  - b. breast
  - c. cervix
  - d. vagina
52. Cost means:
- a. muscle
  - b. bone
  - c. rib
  - d. gland
53. Thorax means:
- a. head
  - b. brain
  - c. chest
  - d. abdomen
54. Pnea means:
- a. breathing
  - b. sweating
  - c. assimilating
  - d. digesting

## POST TEST - continued

55. Trachea means:

- a. throat
- b. voice box
- c. windpipe
- d. nose

56. Cephalo means:

- a. ankle
- b. head
- c. nerve
- d. chest

57. Spondyl means:

- a. vertebra
- b. membrane
- c. nerve
- d. skull

58. Meningo means:

- a. skull
- b. membrane
- c. nerve
- d. skull

59. The term meaning difficulty in swallowing is:

- a. stomatitis
- b. subglossal
- c. diaphoresis
- d. dysphagia

60. An opening into the large intestine is called a:

- a. cystostomy
- b. colostomy
- c. proctoscopy
- d. cholecystectomy

61. An opening into the abdomen is called a:

- a. craniotomy
- b. gastrotomy
- c. laparotomy
- d. tracheotomy

**POST TEST - continued**

62. Dermatitis refers to an inflammation of the:
- a. ear
  - b. stomach
  - c. lung
  - d. skin
63. The term which means to cut out a stone is:
- a. nephrectomy
  - b. cholecystectomy
  - c. lithotomy
  - d. craniotomy
64. A fatty tumor is called a:
- a. lipoma
  - b. adenoma
  - c. carcinoma
  - d. myoma
65. The term which means removal of a fallopian tube is:
- a. hysterectomy
  - b. mastectomy
  - c. salpingectomy
  - d. nephrectomy

**Prefixes**

66. Ab means:
- a. to
  - b. before
  - c. against
  - d. away
67. Dys means:
- a. painful
  - b. outside
  - c. inside
  - d. abnormal
68. Ecto means:
- a. painful
  - b. outside
  - c. inside
  - d. abnormal

**POST TEST - continued**

69. Endo means:
- a. painful
  - b. outside
  - c. inside
  - d. abnormal
70. Supra means:
- a. painful
  - b. outside
  - c. inside
  - d. above
71. Hemi means:
- a. painful
  - b. inside
  - c. half
  - d. outside
72. Hyper means:
- a. above
  - b. decrease
  - c. outside
  - d. below
73. Hypo means:
- a. increase
  - b. below
  - c. above
  - d. outside
74. Trans means:
- a. across
  - b. above
  - c. below
  - d. between
75. A word that means away from is:
- a. adduction
  - b. abduction
  - c. addiction
  - d. rotation

## POST TEST - continued

76. Painful urination is:
- a. anuria
  - b. polyuria
  - c. dysuria
  - d. hematuria
77. Outside of the normal place is:
- a. endoscopic
  - b. ectopic
  - c. eupneac
  - d. suprapubic
78. Looking inside of a body cavity is:
- a. endoscopy
  - b. ectopic
  - c. bronchoscopy
  - d. suprapubic
79. Suprapubic means:
- a. below pubic bone
  - b. above pubic bone
  - c. away from pubic bone
  - d. toward pubic bone
80. A term to describe half paralyzed is:
- a. hemisphere
  - b. hemiplegia
  - c. bilateral
  - d. quadriplegia
81. Hypertrophy of an organ means it is of:
- a. excessive size
  - b. normal size
  - c. small size
  - d. none of the above
82. Hypodermic means:
- a. above the skin
  - b. above the muscle
  - c. below the muscle
  - d. below the skin



**POST TEST - continued**

83. Transurethral means:
- a. above the urethra
  - b. below the urethra
  - c. through the urethra
  - d. outside the urethra
84. Ad means:
- a. without
  - b. away from
  - c. toward
  - d. before
85. Bi means:
- a. life
  - b. two
  - c. three
  - d. living
86. Peri means:
- a. between
  - b. around
  - c. increase
  - d. decrease
87. Inter means:
- a. around
  - b. between
  - c. above
  - d. behind
88. A term which means normal breathing is:
- a. apnea
  - b. dyspnea
  - c. eupnea
  - d. orthopnea
89. Sublingual means:
- a. above the tongue
  - b. under the tongue
  - c. above the stomach
  - d. under the stomach

**POST TEST - continued**

90. A term which means against life is:

- a. antibiotic
- b. antidote
- c. interstitial
- d. pericardial

**Suffixes**

91. Algia means:

- a. pain
- b. protrusion
- c. puncture
- d. fixation

92. Cele means:

- a. pain
- b. protrusion
- c. puncture
- d. fixation

93. Desis means:

- a. pain
- b. protrusion
- c. puncture
- d. fixation

94. Ectomy means:

- a. removal of
- b. repair of
- c. puncture of
- d. opening into

95. Emia means:

- a. urine
- b. blood
- c. cell
- d. tissue

96. Itis means:

- a. inflammation
- b. removal
- c. repair
- d. puncture

**POST TEST - continued**

97. Oma means:
- a. tumor
  - b. opening
  - c. incision into
  - d. repair
98. Ostomy means:
- a. fixation of
  - b. opening into
  - c. incision into
  - d. tumor
99. Otomy means:
- a. fixation of
  - b. opening into
  - c. incision into
  - d. excising
100. Plasty means:
- a. fixation
  - b. repair
  - c. enlargement
  - d. disease
101. Scopy means to:
- a. repair
  - b. inspect
  - c. cut away
  - d. add on
102. Pain in a nerve is called:
- a. uremia
  - b. neuralgia
  - c. nephroma
  - d. neuritis
103. A protrusion of the bladder is a:
- a. cystocele
  - b. rectocele
  - c. cystitis
  - d. cystectomy

**POST TEST - continued**

104. Arthrodesis is to surgically:

- a. remove a joint
- b. fix a joint
- c. exercise a joint
- d. repair a bone

105. Removal of the colon is a:

- a. cholecystectomy
- b. colostomy
- c. colectomy
- d. gastrectomy

106. Hyperglycemia means:

- a. high sugar in urine
- b. high sugar in blood
- c. high urea in urine
- d. high urea in blood

107. Inflammation of the gallbladder is:

- a. hepatitis
- b. cholecystitis
- c. cholelithiasis
- d. gastritis

108. A tumor of the kidney is a:

- a. nephritis
- b. nephroma
- c. cystitis
- d. cystoma

109. An opening into the kidney is a:

- a. cystotomy
- b. nephrostomy
- c. nephrotomy
- d. colostomy

110. The surgical repair of a kidney is a:

- a. nephroplasty
- b. nephrectomy
- c. cystoscopy
- d. cystotomy

**POST TEST - concluded**

111. Inspection of the urinary bladder is:
- a. nephropexy
  - b. gastroscopy
  - c. cystoscopy
  - d. laparotomy
112. Puncturing the chest to remove fluid is called a/an:
- a. arthrotomy
  - b. arthrodesis
  - c. thoracentesis
  - d. thoracotomy
113. Cutting into the chest is called a/an:
- a. arthrotomy
  - b. arthrodesis
  - c. thoracentesis
  - d. thoracotomy
114. Megaly means:
- a. inflammation
  - b. enlargement
  - c. fixation
  - d. dissolving
115. Rhaphy means:
- a. suture
  - b. falling
  - c. incision into
  - d. removal of



## ANSWERS TO POST TEST

### Module B



#### Roots

- |       |       |
|-------|-------|
| 1. c  | 23. a |
| 2. a  | 24. c |
| 3. c  | 25. d |
| 4. d  | 26. c |
| 5. c  | 27. a |
| 6. b  | 28. b |
| 7. a  | 29. a |
| 8. d  | 30. d |
| 9. b  | 31. b |
| 10. a | 32. c |
| 11. c | 33. c |
| 12. b | 34. d |
| 13. b | 35. a |
| 14. c | 36. c |
| 15. d | 37. a |
| 16. c | 38. c |
| 17. a | 39. a |
| 18. b | 40. a |
| 19. c | 41. b |
| 20. a | 42. a |
| 21. d | 43. d |
| 22. b | 44. c |

#### Pre-fixes

- |       |       |
|-------|-------|
| 45. c | 66. d |
| 46. d | 67. a |
| 47. b | 68. b |
| 48. d | 69. c |
| 49. a | 70. d |
| 50. a | 71. c |
| 51. b | 72. a |
| 52. c | 73. b |
| 53. c | 74. a |
| 54. a | 75. b |
| 55. c | 76. c |
| 56. b | 77. b |
| 57. a | 78. a |
| 58. b | 79. b |
| 59. d | 80. b |
| 60. b | 81. a |
| 61. c | 82. d |
| 62. d | 83. c |
| 63. c | 84. c |
| 64. a | 85. b |
| 65. c | 86. b |
|       | 87. b |

**ANSWERS TO POST TEST - concluded**

88. c

89. b

90. a

**Suffixes**

91. a

112. c

92. b

113. d

93. d

114. b

94. a

115. a

95. b

96. a

97. a

98. b

99. c

100. b

101. b

102. b

103. a

104. b

105. c

106. b

107. b

108. b

109. b

110. a

111. c

POST TEST

Module C



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The abbreviation for by mouth is:
  - a. NPO
  - b. PO
  - c. STAT
  - d. OOB
2. The abbreviation for nothing by mouth is:
  - a. NPO
  - b. PO
  - c. STAT
  - d. OOB
3. STAT means:
  - a. immediately
  - b. later
  - c. tomorrow
  - d. today
4. The abbreviation for Clinitest and Acetest is:
  - a. C & A
  - b. STAT
  - c. OOB
  - d. NPO
5. A.M. stands for:
  - a. evening
  - b. morning
  - c. tomorrow
  - d. today

**POST TEST - continued**

6. Bathroom privileges is written:
  - a. bedrest
  - b. BRP
  - c. dangle
  - d. up
7. BM stands for:
  - a. better meals
  - b. by mouth
  - c. bowel movement
  - d. none of the above
8. SSE means:
  - a. slow, sailing, easy
  - b. soap suds enema
  - c. neither a nor b
  - d. both a and b
9. Respirations, pulse, and temperature is written:
  - a. RTP
  - b. TRP
  - c. PTR
  - d. TPR
10. Nursing assistant is written:
  - a. NA
  - b. AN
  - c. neither a nor b
  - d. both a and b
11. LPN means:
  - a. licensed practical nurse
  - b. licensed physical nurse
  - c. practical nurse
  - d. leukopoietic nucleus
12. The abbreviation OOB means:
  - a. out of bandages
  - b. out of bedpans
  - c. out of bed
  - d. out of binders

## POST TEST - continued

13. The abbreviation cal. means:

- a. clinitest
- b. colon
- c. calorie
- d. calcium

14. Twice a day is written:

- a. tid
- b. bid
- c. qid
- d. qd

15. Every other day is written:

- a. tid
- b. bid
- c. qid
- d. qod

16. The abbreviation for intake and output is:

- a. in and out
- b. IO
- c. I & O
- d. O & I

17. MD means:

- a. deaf-mute
- b. medical disaster
- c. mid dorsal
- d. medical doctor

18. Write the meaning for the following abbreviations on the lines provided on your answer sheet.

- a. ER
- b. ICU
- c. PT
- d. CS
- e. OR
- f. CBC
- g. Hgb
- h. Hct
- i. FBS

- j. h
- k. UA
- l. MI
- m. CVA
- n. IVP
- o. IPPB
- p. EKG
- q.  $\bar{c}$
- r.  $\bar{s}$

- s.  $\uparrow$
- t.  $\downarrow$
- u.  $H_2O$
- v.  $O_2$
- w.  $CO_2$
- x. BP<sup>2</sup>
- y. LPN
- z. RN
- aa. QH



**POST TEST - concluded**

19. Write the abbreviation for the following terms or phrases on the lines provided on your answer sheet.
- a. weight
  - b. as desired
  - c. left eye
  - d. four times daily
  - e. do not resuscitate
  - f. gynecology
  - g. potassium

## ANSWERS TO POST TEST

### Module C



- |      |       |       |
|------|-------|-------|
| 1. b | 7. c  | 13. c |
| 2. a | 8. b  | 14. b |
| 3. a | 9. d  | 15. d |
| 4. a | 10. a | 16. c |
| 5. b | 11. a | 17. d |
| 6. b | 12. c |       |
- 
- |                             |                                             |
|-----------------------------|---------------------------------------------|
| 18. a. Emergency Room       | o. Intermittent Positive Pressure Breathing |
| b. Intensive Care Unit      | p. Electrocardiogram                        |
| c. Physical Therapy         | q. with                                     |
| d. Central Supply           | r. without                                  |
| e. Operating Room           | s. above, over, higher, increase            |
| f. Complete Blood Count     | t. below, under, lower, decrease            |
| g. Hemoglobin               | u. water                                    |
| h. Hematocrit               | v. oxygen                                   |
| i. Fasting Blood Sugar      | w. carbon dioxide                           |
| j. Hour                     | x. blood pressure                           |
| k. Urinalysis               | y. Licensed Practical Nurse                 |
| l. Myocardial Infarction    | z. Registered Nurse                         |
| m. Cerebrovascular Accident | aa. every hour                              |
| n. Intravenous Pyelogram    |                                             |

**ANSWERS TO POST TEST - concluded**

19. a. wt  
b. ad lib  
c. os  
d. qid  
e. DNR  
f. gyn  
g. K

**POST TEST**

**Module D**



**Directions:** Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. **DO NOT WRITE ON THIS TEST.**

1. Appendectomy means:
  - a. cutting into appendix
  - b. removal of appendix
  - c. making an opening into appendix
  - d. none are correct
2. A cholecystectomy is:
  - a. cutting into common duct
  - b. cutting into gall sac
  - c. removal of stones
  - d. removal of gallbladder
3. A colostomy is:
  - a. an incision into gall sac
  - b. surgical opening into colon
  - c. removal of colon
  - d. none are correct
4. Gastrectomy is:
  - a. opening into stomach
  - b. removal of colon
  - c. removal of stomach
  - d. none are correct
5. A laparotomy is:
  - a. surgical incision into abdomen
  - b. surgical incision into stomach
  - c. surgical excision of abdomen
  - d. none are correct

## POST TEST - continued

6. Gastrosocopy means:
  - a. removal of the stomach
  - b. inspecting the stomach
  - c. cutting into the stomach
  - d. none are correct
7. Thoracotomy means:
  - a. removal of lung
  - b. removal of chest
  - c. cutting into the chest
  - d. cutting into the lung
8. Bronchoscopy means:
  - a. removal of bronchus
  - b. cutting into bronchus
  - c. inspecting the bronchus
  - d. none are correct
9. Mastectomy means:
  - a. removal of heart
  - b. removal of chest
  - c. removal of breast
  - d. none are correct
10. Arthrotomy means:
  - a. removal of joint
  - b. incision into joint
  - c. opening into joint
  - d. none are correct
11. Hysterectomy means:
  - a. removal of uterus
  - b. removal of ureter
  - c. removal of urethra
  - d. none are correct
12. Prostatectomy means:
  - a. removal of prosthesis
  - b. removal of prostate
  - c. removal of uterus
  - d. none are correct



## POST TEST - continued

13. Vasectomy means:
- a. incision into the vas deferens
  - b. removal of the testicle
  - c. removal of the vas deferens
  - d. none are correct
14. Arteriogram means:
- a. visual study of the artery
  - b. visual study of the kidney
  - c. visual study of the aorta
  - d. none are correct
15. Craniotomy means:
- a. incision into scalp
  - b. incision into skull
  - c. incision into brain
  - d. none are correct
16. Meningitis means:
- a. inflammation of the lining of the joints
  - b. inflammation of the membrane of the brain
  - c. inflammation of the heart muscle
  - d. none are correct
17. Cataract extraction means:
- a. implanting cataract
  - b. removing cataract
  - c. cutting into eye
  - d. none are correct
18. Cystectomy means:
- a. removal of the bladder
  - b. removal of the kidney
  - c. removal of the uterus
  - d. none are correct
19. Cystotomy means:
- a. removal of the bladder
  - b. incision into the bladder
  - c. removal of the gall sac
  - d. none are correct

## POST TEST - concluded

20. Cystoscopy means:
- a. removal of bladder
  - b. inspection of the bladder
  - c. dissecting bladder
  - d. none are correct
21. Otoplasty means:
- a. repair of otoscope
  - b. repair of ear
  - c. repair of eye
  - d. none are correct
22. Esophagoscopy means:
- a. removal of esophagus
  - b. cutting into esophagus
  - c. resection of esophagus
  - d. looking into the esophagus
23. Laryngoscopy means:
- a. removal of voice box
  - b. cutting into voice box
  - c. resection of voice box
  - d. looking into voice box
24. Salpingectomy means:
- a. removal of ovary
  - b. removal of fallopian tube
  - c. cutting into ovary
  - d. cutting into fallopian tube
25. Ureterostomy means:
- a. removal of ureter
  - b. looking into ureter
  - c. opening into ureter
  - d. resection of ureter

## ANSWERS TO POST TEST

### Module D

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- |       |       |
|-------|-------|
| 1. b  | 14. a |
| 2. d  | 15. b |
| 3. b  | 16. b |
| 4. c  | 17. b |
| 5. a  | 18. a |
| 6. b  | 19. b |
| 7. c  | 20. b |
| 8. c  | 21. b |
| 9. c  | 22. d |
| 10. b | 23. d |
| 11. a | 24. b |
| 12. b | 25. c |
| 13. c |       |

# SAMPLE ANSWER SHEET

NAME \_\_\_\_\_ DATE \_\_\_\_\_

UNIT \_\_\_\_\_ MODULE \_\_\_\_\_

(1) a b c d e f g (2) a b c d e f g (3) a b c d e f g

(4) a b c d e f g (5) a b c d e f g (6) a b c d e f g

(7) a b c d e f g (8) a b c d e f g (9) a b c d e f g

(10) a b c d e f g (11) a b c d e f g (12) a b c d e f g

(13) a b c d e f g (14) a b c d e f g (15) a b c d e f g

(16) a b c d e f g (17) a b c d e f g (18) a b c d e f g

(19) a b c d e f g (20) a b c d e f g (21) a b c d e f g

(22) a b c d e f g (23) a b c d e f g (24) a b c d e f g

(25) a b c d e f g (26) a b c d e f g (27) a b c d e f g

(28) a b c d e f g (29) a b c d e f g (30) a b c d e f g

(31) a b c d e f g (32) a b c d e f g (33) a b c d e f g

(34) a b c d e f g (35) a b c d e f g (36) a b c d e f g

(37) a b c d e f g (38) a b c d e f g (39) a b c d e f g

(40) a b c d e f g (41) a b c d e f g (42) a b c d e f g

(43) a b c d e f g (44) a b c d e f g (45) a b c d e f g

(46) a b c d e f g (47) a b c d e f g (48) a b c d e f g

(49) a b c d e f g (50) a b c d e f g (51) a b c d e f g